2011
Statewide Transportation System Needs Assessment

STATEWIDE TRANSPORTATION SYSTEM NEEDS ASSESSMENT

FINAL REPORT

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Prepared for:

California Transportation Commission

ACKNOWLEDGEMENTS

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TABLE OF CONTENTS

TABLE OF CONTENTS (CONT'D)

TABLE OF CONTENTS (CONT'D)

LIST OF TABLES

(Note: Chapter 7 has been removed along with any corresponding tables and figures).

LIST OF FIGURES

2. INTRODUCTION

3. TEN-YEAR TRANSPORTATION SYSTEM NEEDS ANALYSIS

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CHAPTER 1
EXECUTIVE SUMMARY

BACKGROUND

California's transportation system is the largest and most complex in the nation. Historical investments in freeways, roads, bridges, rail systems, airports, public transit, and other transportation infrastructure have fueled the state's phenomenal economic growth in recent decades. But times have changed.

Today, California's transportation system is in jeopardy. Investments to preserve transportation systems simply have not kept pace with the demands on them, and this underfunding - decade after decade - has led to the decay of one of the state's greatest assets. Failing to adequately invest in the restoration of California's roads, highways, bridges, airports, seaports, railways, border crossings, and public transit infrastructure will lead to further decay and a deterioration of service from which it may take many years to recover. The future of the state's economy and our quality of life depend on a transportation system that is safe and reliable, and which moves people and goods efficiently.

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These new investments are necessary at a time when the national economy is struggling to recover from the financial shocks of 2008, and when many states today, California included, face huge budget shortfalls for many programs and services. Now, more than ever, it's critical for state governments to set clear budget priorities, and to effectively communicate what's needed most. It is also important to recognize that funding needed transportation system improvements will positively affect California's economy.

The goal of this report is to detail what is needed for California's transportation system and how we can pay for it. The report, therefore, allows transportation agencies and stakeholder groups to provide a consistent message to decision makers on these important subjects.

The goal of this report is to detail what is needed for California's transportation system and how we can pay for it.

The last needs assessment for California's transportation system was published in 1999 for the State Senate Transportation Committee and the State Senate President pro Tempore. In 2010, the California Transportation Commission (CTC) launched an effort to update the assessment. This effort was led by the state's Metropolitan Planning Organizations (MPOs) and Regional Transportation Planning Agencies (RTPAs). This report is the result of that effort.

One of the first steps in preparing this report was the formation of an Executive Group to oversee the work. This group included staff from the CTC; executive staff representatives from the California Department of Transportation (Caltrans) as well as several MPOs and RTPAs; and representatives from a number of other transportation agencies and stakeholder organizations. These members brought together staff resources and consultants to produce this ambitious study in a spirit of collaboration.

SUMMARY OF FINDINGS

Table 1-1 summarizes the overall results of the transportation systems needs analysis for the ten-year period from 2011 to 2020. The total cost of all system preservation, system management, and system expansion projects during the ten-year study period is nearly $538.1 billion. Of this total, the cost of system preservation projects (both rehabilitation projects and maintenance costs) during the study period is $341.1 billion. It should be emphasized that the costs for system preservation contained in the report are based on the goal of meeting accepted standards that would bring transportation facilities into a "state of good repair" within the ten-year study period. These goals would lead to higher levels of investment in system preservation than are typically reflected in existing transportation plans and capital improvement programs.

The total cost of all system preservation, system management, and system expansion projects during the ten-year study period is nearly $538.1 billion.

The cost of system management projects and system expansion projects over the same period is estimated at $197 billion; these cost estimates are taken primarily from adopted Regional Transportation Plans (RTPs), which are "fiscally constrained." This means that the number and types of projects are limited to those for which revenues can be reasonably identified during the planning period.

The total estimated revenue from all sources during the ten-year study period is $242.4 billion. This represents about 45 percent of the overall estimated costs of projects and programs that were identified in the needs analysis, and leads to a shortfall of about $295.7 billion over the ten-year period. If it is assumed that revenues for preservation (rehabilitation and maintenance) are provided at historical levels (43.4%), then the amount of revenue available for system expansion and system management projects during this period is $94.7 billion, or only about 48 percent of the estimated costs of needed projects.

The total estimated revenue from all sources during the ten-year study period is $242.4 billion.

In addition to the transportation systems summarized in Table 1-1, this report also addresses the needs of California's new high-speed rail system.

Table 1-1. Ten-Year Cost-Revenue Summary

	A. Preservation - Rehabilitation	B. Preservation - Maintenance	C. Preservation - Subtotal	D. System Management	E. System Expansion	F. Subtotal (D+E)	Total
Costs:							
Highways	$70,380,000	$9,280,000	$79,660,000	$7,544,777	$78,740,144	$86,284,921	$165,944,921
Local Roads	NA	NA	$102,900,000	$2,294,798	$24,155,968	$26,450,766	$129,350,766
Public Transit	$32,675,000	$109,682,000	$142,357,000	$1,270,308	$30,903,798	$32,174,106	$174,531,106
Inter-city Rail	NA	NA	$170,000	$94,045	$6,143,864	$6,237,909	$6,407,909
Freight Rail	$64,420	$0	$64,420	$387,332	$21,924,017	$22,311,349	$22,375,769
Seaports	$4,600,000	$0	$4,600,000	$402,550	$7,097,466	$7,500,016	$12,100,016
Airports	$10,420,000	$0	$10,420,000	$953,892	$4,553,791	$5,507,683	$15,927,683
Land Ports	NA	NA	$935,000	$0	$33,798	$33,798	$968,798
Intermodal Facilities	NA	NA	$0	$0	$5,946,876	$5,946,876	$5,946,876
Bike / Ped	NA	NA	$0	$577,816	$3,935,565	$4,513,381	$4,513,381
Total Costs*			$341,106,420	$13,525,518	$183,435,287	$196,960,805	$538,067,225
Revenues:							
Federal	NA	NA	NA	NA	NA	NA	$30,900,000
State	NA	NA	NA	NA	NA	NA	$53,100,000
Regional / Local	NA	NA	NA	NA	NA	NA	$158,400,000
Total Revenues			$147,707,000			$94,693,000	$242,400,000
Net Revenues			($193,399,420)			($102,267,805)	($295,667,225)
% Funded			43.30%			48.08%	45.05%

NOTE: Amounts reported in $ thousands ($000's)

* Includes $3.81 billion in SHOPP Mobility Program costs under (D) System Management

Over the next ten years, Phase 1 will include the construction of about 520 miles of rail between San Francisco and Anaheim. When completed, Phase 1 will provide 2-hour-and-40-minute nonstop service from San Francisco south to Los Angeles. The estimated cost for the Phase I full HSR service, as reported in the Draft 2012 Business Plan, is $98.5 billion in the year of expenditure with expected completion by 2033. The estimated available revenue for the project as of November 2011 is $6.3 billion, including $3.5 billion in federal funding and $2.8 billion in state funding.

This report also includes an analysis of the transportation needs of Native American tribes in California. This analysis is limited in scope because Caltrans did not receive adequate survey responses from Native American communities in the short time available. As a result, more research is needed.

PERFORMANCE ANALYSIS

In addition to detailing statewide needs, estimating what they will cost, and discussing what revenues will be available, the Executive Group felt that it also would be important to try to quantify the outcomes that would result if these transportation system improvements were implemented by 2020.

With direction from the Executive Group and input from the MPO/State Agency Planning Working Group on California's Senate Bill 375 (Steinberg, 2008) (SB 375) implementation, a set of 12 performance measures representing a broad range of desired outcomes was identified (see Table 1-2). Each of the 18 MPOs was asked to provide information for an analysis of these performance measures.

Economic Performance Measures

The results for the first ten years indicate that Total Value Added to the Gross State Product would range from an additional $110 billion to an additional $140 billion.

For the first two measures, "Increase in Jobs" and "Value Added to Gross State Product," the results were estimated by Caltrans economists who used transportation model outputs provided by the MPOs. The results for the first ten years indicate that Total Value Added to the Gross State Product (GSP) would range from an additional $110 billion (Low) to an additional $140 billion (High). This represents about 5 to 7 percent of the current GSP (estimated at $1.9 trillion).

Table 1-2. Statewide Transportation Needs Assessment - Selected Performance Measures

SMART MOBILITY 2010 GOALS	CATEGORIES	PERFORMANCE MEASURES
Robust Economy	Employment	Increase in jobs
Robust Economy	Economic Output	Value added to Gross State Product
Reliable Mobility	Multimodal Travel Mobility	Change in average per-trip travel time
Reliable Mobility	Asset Condition	Conformance with accepted standards for maintaining system in state of good repair
Environmental Stewardship	Climate and Energy Conservation	Systemwide Vehicle Miles Traveled (VMT) per capita
Environmental Stewardship	Emissions Reductions	Greenhouse gas (GHG) emissions per capita
Environmental Stewardship	Air Quality/Public Health	Criteria Pollutant emissions per capita
Social Equity	Equitable Distribution of Access and Mobility	Comparison of outcomes for Low Income and Minority (LIM) and non-LIM communities
Health and Safety	Multimodal Safety	Number of injuries and fatalities per capita from all collisions (including bicycle and pedestrian)
Health and Safety	Pedestrian and Bicycle Mode Share	Percent of total trips per capita taken by biking or walking
Location Efficiency	Support for Sustainable Growth	Percent of total dwelling units in Transit Priority Areas
Location Efficiency	Transit Mode Share	Percent of total trips per capita taken by transit

We estimated that over the same period, the projects would add between 77,000 and 108,000 jobs annually, compared with the No-Build alternative. The annual job growth would continue throughout the evaluation period. Another way of looking at this benefit is that the investments would generate between 770,000 and more than 1 million job-years (a "job-year" equals one person working in one job for a full year). For the entire twenty-year period (2011-2030), Total Value Added to GSP would be between $290 billion and $370 billion. This represents 15 to 19 percent of the current GSP. The added jobs for the entire period would be between 102,000 and 143,000 jobs annually.

The projects would add between 77,000 and 108,000 jobs annually, compared with the No-Build alternative.

Chapter 6 also estimates the short-term economic impacts during project construction.

Non-Economic Performance Measures

Of the other ten selected performance measures that are listed in Chapter 6, Table 6-2, comparable quantitative results were obtained for seven of the measures. These results are reported in Chapter 6, Table 6-3.

Change in Average Travel Time

The category of "multimodal travel mobility" was evaluated by looking at the change in average per-trip travel time for all trips, from the base year to 2020. The results vary, both in direction and magnitude from region-to-region. In most cases, there would be a slight increase in travel time (in most cases less than one minute). Three of the regions reported decreases in travel time.

Vehicle Miles Traveled

The category of "climate and energy conservation" was evaluated by looking at changes in per-capita vehicle miles traveled (VMT), from the base year to 2020. Again, the results vary from region-to-region, with most regions reporting increases in per-capita VMT.

Greenhouse Gas Emissions

The category of "emissions reductions" was evaluated by looking at changes in per-capita greenhouse gas (GHG) emissions, from the base year to 2020. Ten regions reported reductions in per-capita GHG emissions. Six regions reported increases.

Criteria Pollutant Emissions

The categories of "air quality" and "public health" were evaluated by looking at changes in criteria pollutants per capita, from the base year to 2020. In this case, 14 of the regions reported reductions in per-capita pollutants. Two regions reported no change.

Multimodal Safety

The category of "multimodal safety" was evaluated by looking at changes in the number of injuries and fatalities, per capita, due to all collisions, from the base year to 2020. Of the six MPOs that reported on this measure, two of them reported reductions in per-capita rates. The other four regions reported no change.

Pedestrian and Bicycle Mode Share

The category of "pedestrian and bicycle mode share" is evaluated by looking at the change in the percentage of total trips (or in some cases just work trips) that are taken by walking or bicycling. Of the 14 MPOs reporting results in this category, 5 reported increases in mode share, 2 reported reductions, and 10 reported no change.

Transit Mode Share

The category of "transit mode share" is evaluated by looking at the change in the percentage of total trips (or in some cases just work trips) taken by public transit. Of the 14 MPOs reporting results in this category, 8 reported increases in mode share, 1 reported a reduction, and 5 reported no change.

Performance Analysis Summary

Overall, the results of this initial performance analysis indicate that the transportation system investments identified in the ten-year needs assessment would have significant positive impacts for the state. The cumulative economic benefits, both in terms of growth in jobs and growth in Gross State Products, would be significant. In addition, these investments would appear to support certain non-economic benefits, such as reductions in criteria air pollutants and increases in transit mode share. In addition, as discussed previously, funding of the system preservation projects and programs described in this report would lead to significant improvements in asset conditions. These would lead to greater long-term efficiency and lower ongoing maintenance costs for transportation systems.

The transportation system investments identified in the ten-year needs assessment would have significant positive impacts for the state.

At the same time, there are several possible categories of performance measures for which results are mixed, or for which data are not currently available. This may be explained in part by the fact that all of the existing RTPs were adopted prior to the enactment of SB 375, which has placed a greater emphasis on the relationship between transportation planning and certain performance outcomes such as GHG emission reductions.

In addition, this report also highlights the need for additional research in the area of performance analysis, as well as improvements in standards for reporting such information through updates to regional transportation plans and other planning and programming documents.

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CHAPTER 2
INTRODUCTION

BACKGROUND

In 2010, the California Transportation Commission (CTC) formed an Executive Working Group to oversee the development of an updated version of the "Inventory of Ten-Year Funding Needs for California's Transportation Systems." The last Needs Assessment report was produced in 1999 for the State Senate Transportation Committee and the State Senate President pro Tempore.

The overall goal of the updated Needs Assessment is to develop a coordinated list of transportation projects and programs, and to identify related funding requirements.

The Executive Working Group for the current update included commissioners and staff from the CTC, and executive staff representatives from the California Department of Transportation (Caltrans), several Metropolitan Planning Organizations (MPOs), Regional Transportation Planning Agencies (RTPAs), a number of other transportation agencies, and stakeholder organizations. They all contributed staff resources and consultants to produce this ambitious report.

The overall goal of the updated Needs Assessment is to develop a coordinated list of transportation projects and programs, and to identify related funding requirements that will allow local, state, and regional transportation agencies in California to present a consistent message when communicating statewide needs for preserving, expanding, maintaining, and operating the state's transportation system. The report is designed to address the needs of the statewide transportation system for the next ten years (2011 to 2020).

As with the 1999 report, there are certain limitations to this effort. With the relatively limited time and resources available to complete this report, it is worth noting that it is essentially a compilation of surveys. It does not offer a tightly integrated and prioritized planning exercise. For example, the various surveys have not been normalized for compatibility. Rather, the responses from all respondents have been summarized and assembled. The summaries for each of the key topic areas are included, with more detailed categorical listings and spreadsheets included as references in Appendix B and Appendix C of this report.

SURVEYS

To prepare this needs assessment, representatives from Caltrans and California's major MPOs conducted surveys of each of the state's 18 MPOs and 26 rural Regional Transportation Planning Agencies (RTPAs). The surveys asked each regional agency to identify system expansion projects, system management projects, and system preservation projects that could be completed over the next ten years. The agencies identified these projects by using the "fiscally constrained" project list for the ten-year period detailed in their most recently adopted Regional Transportation Plan (RTP), and by using other relevant reports and studies. Survey responses were received from all of the state's MPOs and 15 of the state's 26 RTPAs, which collectively represent 99 percent of the state's population. In addition, Caltrans and several other transportation organizations provided information for certain categories of transportation system needs.

Two special studies also were conducted to obtain information about transportation system categories that are not adequately covered by RTPs and existing statewide plans and studies. These reports, the "Local Roads Study" and the "Public Transit Study," are discussed below.

LOCAL ROADS STUDY

The first comprehensive study of California's streets and roads in 2008 provided critical information on the condition of local transportation networks, as well as what funding is needed to repair and restore them. This comprehensive update in 2010 provided another look at this vital component of the state's transportation system, and it found further deterioration and a growing funding shortfall. The cities and counties of California sponsored the 2010 update, and the County of Los Angeles Department of Public Works managed it. The Oversight Committee for the update included representatives from the following groups:

- League of California Cities
- California State Association of Counties (CSAC)
- County Engineers Association of California
- County of Los Angeles, Department of Public Works
- California Regional Transportation Planning Agencies (RTPA)
- California Rural Counties Task Force (RCTF)

As in 2008, the objectives for the 2010 update were to report the condition of local streets and roads statewide, and to provide an overall funding picture. The study attempted to answer a handful of important questions.

They included: What are the pavement conditions of local streets and roads? What will it cost to bring pavements to a Best Management Practices (BMP) or most cost-effective condition? How much will it cost to maintain local streets and roads once we achieve either BMP or the optimal pavement condition? What are the essential components of a functioning system? How much is the funding shortfall? What are the solutions? As part of this report, we also wanted to see how different funding scenarios would impact the condition of local streets and roads statewide.

PUBLIC TRANSIT STUDY

To better understand the specific needs of public transit systems statewide, the California Transit Association (CTA) conducted an Assessment of California's Statewide Unfunded Transit Needs for the ten-year period, fiscal year (FY) 2011-12 through FY 2020-21. Transit operators across California have been struggling to balance their budgets in recent years. Ongoing increases in operating costs, increasing capital reinvestment backlogs, and recession-induced reductions in state, regional, and local funding all have challenged operator budgets. Operators have been forced to address these challenges by cutting service, increasing fares, laying off staff, and deferring capital projects to rehabilitate and replace infrastructure. These measures have degraded the quality of service for many Californians who depend on public transportation to get to work, go to school, visit the doctor, and overall mobility. The purpose of this study was to objectively assess how much improvements will cost and how to pay for them, so that decision makers for public transportation can better understand how current funding challenges and investment decisions may evolve.

While the CTA study included an analysis of all types of public transit system needs (system expansion, system management, and system preservation), the survey of MPOs and RTPAs discussed in the previous section also included requests for information regarding public transit system expansion and system management project needs.

After reviewing the results of both studies, it was decided that the results of the CTA study should be used to estimate system preservation needs in this report. Meanwhile, the results of the surveys of MPOs and RTPAs should be used to estimate system expansion and system management needs, because these results appear to be more comprehensive. They also were obtained through the same survey methods used to estimate other system expansion and system management needs.

SUMMARY

Table 2-1 lists the agencies and organizations that were responsible for providing information for the 12 categories of transportation needs that the study evaluated.

Table 2-1: Needs Assessment Categories and Information Sources

Category	Information Sources: System Expansion and System Management	Information Sources: System Preservation
State Highways:		
General Purpose Lanes	MPOs, Rural RTPAs	Caltrans
HOV/Toll Roads/Managed Lanes	MPOs, Rural RTPAs	Not included
Local Roads	MPOs, Rural RTPAs	CSAC
Public Transit	MPOs, Rural RTPAs, California Transit Association	California Transit Association
Intercity Passenger Rail	MPOs, RTPAs, Caltrans Division of Rail	Caltrans
Freight Rail	Caltrans Division of Transportation Planning, Short Line Rail Operators, Seaports	Caltrans
Seaports	Caltrans, California Association of Port Authorities	California Association of Port Authorities, Individual Ports
Airports	Caltrans, California Airports Council	Caltrans, California Airports Council
Land Ports	SANDAG	SANDAG
Major Intermodal Facilities	MPOs, Rural RTPAs	Not included
Bicycle and Pedestrian Systems	MPOs, Rural RTPAs	Part of local roads above
High-Speed Rail System	California High-Speed Rail Authority	Not included
Transportation Facilities on Tribal Lands	Caltrans	Not included

PERFORMANCE ANALYSIS

In addition to the assessment of transportation needs described above, this report also includes an analysis of how the transportation projects and programs included in the needs assessment could lead to better outcomes, both in terms of transportation system performance and overall performance from a broader perspective of "sustainability." A specific set

of performance measures were identified, and an analysis of performance outcomes within each of the 18 MPO planning areas was produced. The results of this analysis are reported in Chapter 5.

POLICY RECOMMENDATIONS

The results of the needs assessment and the performance analysis provide a wide range of information that will be useful to the state and regional transportation agencies and organizations that have produced this report. However, it also is important to evaluate these results in terms of how they can lay the groundwork for a set of policy recommendations that can be forwarded to federal policy makers and transportation agency officials. Chapter 6 of this report offers a set of specific recommendations that Congress and the Administration should consider as they formulate legislation that will set the course for national transportation planning and investments for several years.

REGIONAL PROJECT MAPS

Finally, it was determined that a useful addition to this report would be regional project maps for all 18 MPOs in the state. These maps (Appendix D) illustrate the various types of investments included in the overall Needs Assessment and are included to better assist decision-makers and report users.[1]

TRANSPORTATION SYSTEMS ADDRESSED IN THIS REPORT

The following are descriptions of each of the 12 types of transportation systems that are addressed in this updated Needs Assessment. Those 12 systems are:

[1] A minimum threshold of $100 million was used to define "major projects" in the mapping exercise for the four largest MPOs in the state: the Southern California Association of Governments (SCAG), the Metropolitan Transportation Commission (MTC), the San Diego Association of Governments (SANDAG), and the Sacramento Area Council of Governments (SACOG). This threshold was based on the large volume of projects in these four MPO regions. The other 14 MPOs were not restricted to this threshold.

- State Highway System
- Local Roads
- Public Transit
- Intercity Passenger Rail
- Freight Rail
- Seaports
- Airports
- Land Ports (International Border Crossings)
- Major Intermodal Facilities
- Bicycle and Pedestrian Systems (combined)
- High-Speed Rail System
- Transportation Facilities on Tribal Lands

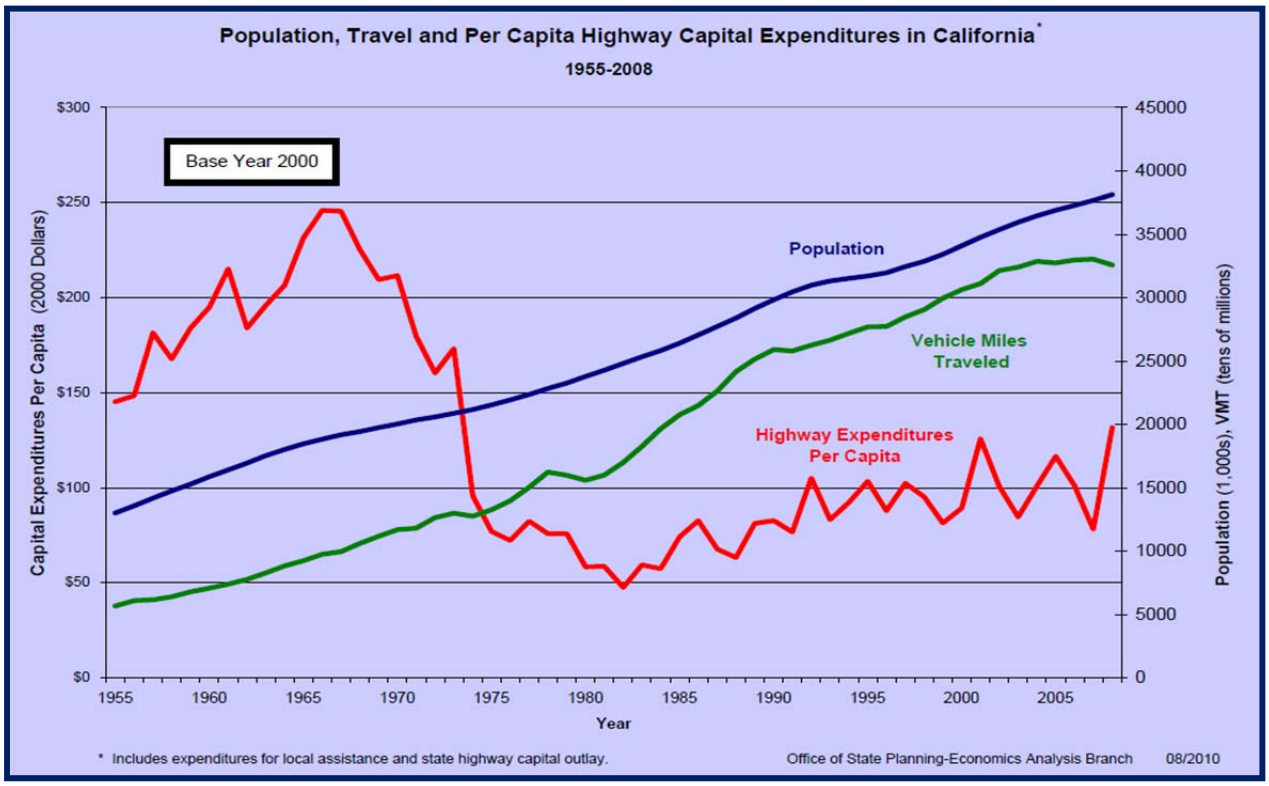
State Highway System

Much of the state highway system was built between 1950 and the early 1970s to serve the growing population and economy of the state. Many of these assets are reaching the end of their service lives.

The California state highway system includes nearly 50,000 lane-miles of pavement; 12,559 bridges; 205,000 culverts and drainage facilities; 87 roadside rest areas; and 29,183 acres of roadside landscaping (see Figures 2-2, 2-3, and 2-4 for maps of the state highway system with insets showing the Northern and Southern California urbanized areas). Approximately 61 percent of the state highway system is multi-lane divided highway, 3 percent is multi-lane undivided highway, and 36 percent is two-lane road. Infrastructure for the state highway system also includes maintenance stations, equipment shops, transportation laboratories, and other support facilities. Much of the state highway system was built between 1950 and the early 1970s to serve the growing population and economy of the state. Many of these assets are reaching the end of their service lives, and most are at an age where they are deteriorating at an accelerating rate.

This deterioration comes at a time when demands on the state highway system are steadily increasing. Between 1955 and 2008, the number of vehicle miles traveled (VMT) annually increased by 475 percent (see Figure 2-1). The average annual growth rate in VMT during that period was 3.4 percent. With this increasing pressure on a rapidly aging highway system, pavement and bridges are deteriorating more quickly. This is creating new areas where collisions are concentrated and traffic congestion is prolonged. The increasing number of VMT also means that rest areas, vista points, and other roadside infrastructure are more heavily used.

Figure 2-1. Population, Travel, and Per Capita Highway Capital Expenditures in California



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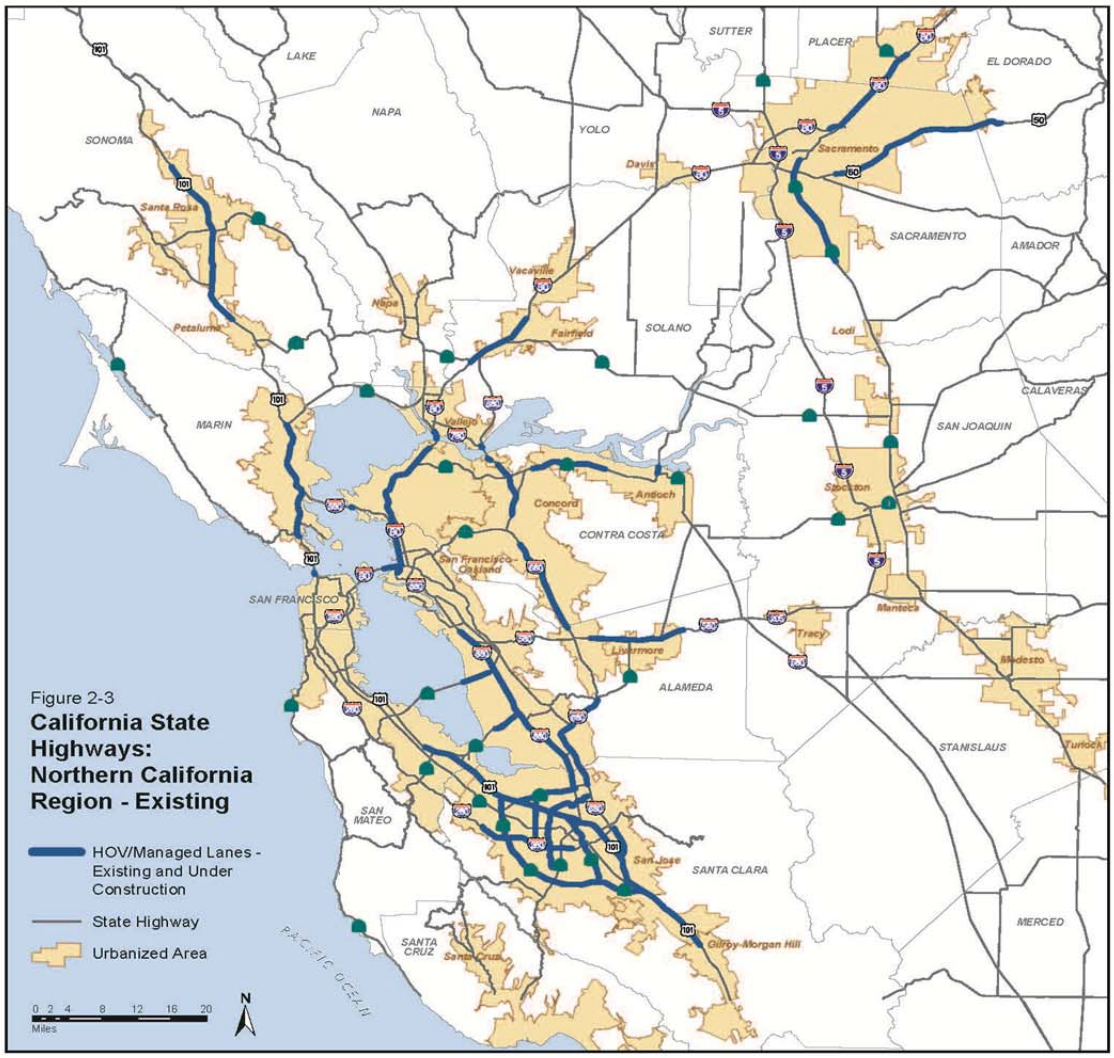
Figure 2-3
California State Highways: Northern California Region - Existing
HOV/Managed Lanes - Existing and Under Construction
State Highway
Urbanized Area
0 2 4 8 12 16 20
Miles
N
SUTTER
PLACER
EL DORADO
LAKE
NAPA
YOLO
SONOMA
Sacramento
Davis
Santa Rosa
SACRAMENTO
AMADOR
Vacaville
Napa
Petaluma
Fairfield
SOLANO
Lodi
CALAVERAS
MARIN
Vallejo
SAN JOAQUIN
Stockton
Antioch
Concord
CONTRA COSTA
San Francisco-Oakland
SAN FRANCISCO
Manteca
Tracy
Livermore
Modesto
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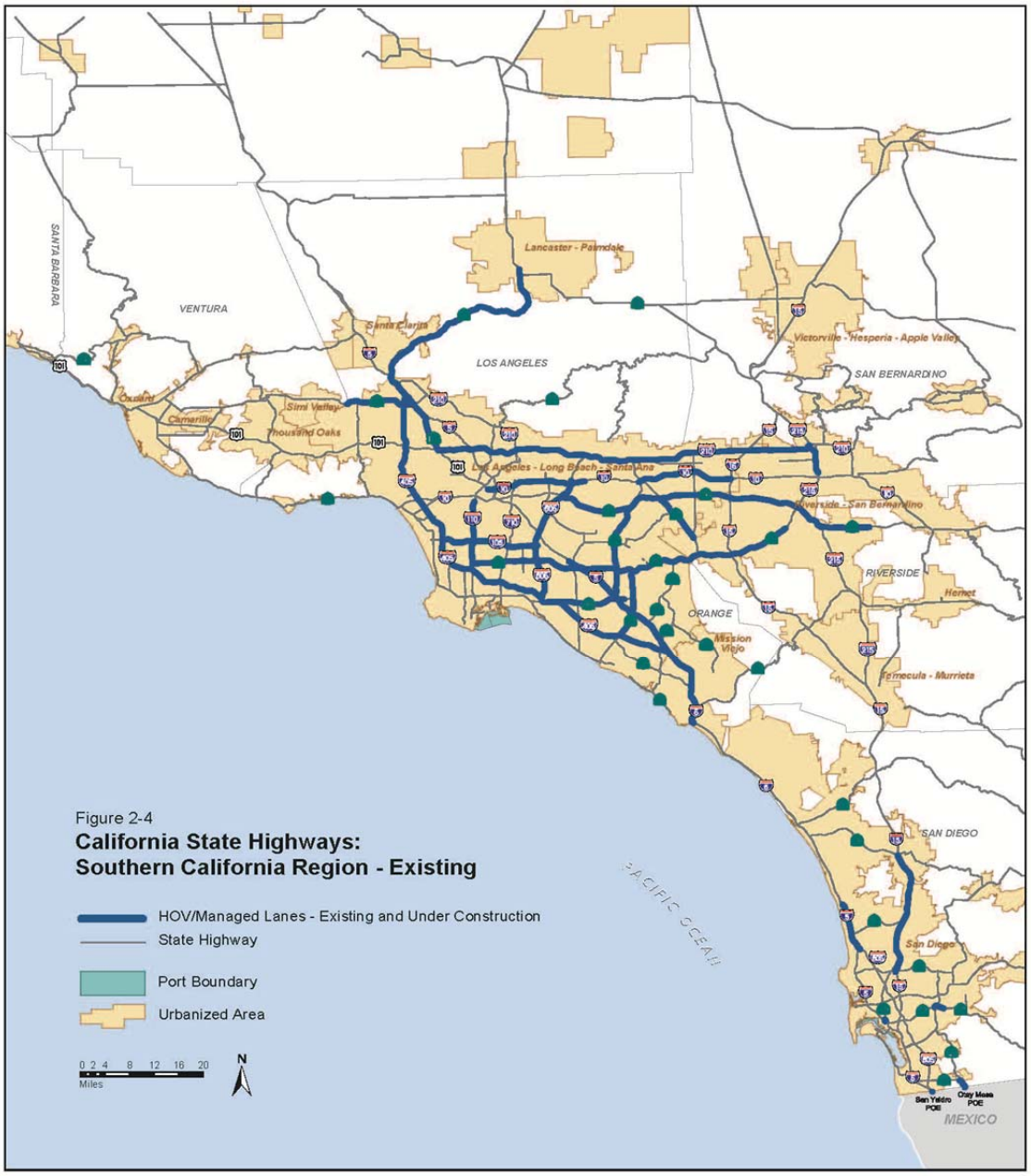
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Oxnard
Camarillo
Simi Valley
Thousand Oaks
Los Angeles - Long Beach - Santa Ana
Riverside - San Bernardino
Hemet
Mission Viejo
Temecula - Murrieta
San Diego
San Ysidro POE
Otay Mesa POE
MEXICO
PACIFIC OCEAN
Figure 2-4
California State Highways:
Southern California Region - Existing
HOV/Managed Lanes - Existing and Under Construction
State Highway
Port Boundary
Urbanized Area
0 2 4 8 12 16 20
Miles
N

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The Office of Freight Management at the Federal Highway Administration estimates that the amount of freight moved on California highways will increase from 971 million tons in 2002 to 2,179 million tons in 2035[2], an increase of more than 100 percent. This increased movement of goods will create more truck traffic, and much of this increase will occur in and around urban areas and on the 50-year-old interstate highway system. Truck traffic exacts a greater toll on pavement and bridges than lighter-weight vehicles, so increasing truck traffic will accelerate the deterioration of the transportation infrastructure.

The amount of freight moved on California highways will increase from 971 million tons in 2002 to 2,179 million tons in 2035.

While trucks impact highways and local roads, they nevertheless are an essential part of the transportation system. The trucking industry has many concerns that go beyond the condition of highway infrastructure. It faces challenges from steadily more stringent vehicle emissions requirements, rising fuel prices, limited parking along highways, driver operator restrictions, traffic congestion, experienced driver shortages, competition from other modes of transportation, and other factors.

Traffic congestion is a serious challenge in all of our metropolitan areas, as urban travelers know all too well. It is essential that resources are focused on reducing metropolitan traffic congestion, as well as maintaining and improving mobility between California's many regions. These efforts will support California's economy and the traveling public. As the state's population and economy grows, demand for interregional travel also will increase. Of the 50,000 or so lane-miles in the state highway system, about 34,000 lane-miles make up the legislatively designated Interregional Road System. About 24,000 lane-miles in this system are categorized as High Emphasis or Focus Routes (See Figure 2-5). This interregional system is not fully constructed to freeway/expressway standards, and it should remain as a high funding priority in order to bring the system up to those standards.

As the state's population and economy grows, demand for interregional travel also will increase.

[2] Freight Analysis Framework, Office of Freight Management and Operations, Federal Highway Administration, United States Department of Transportation, April 2002.

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Figure 2-5. Interregional Road System

Local Roads

California's 58 counties and 480 cities own and maintain 141,235 miles of local streets and roads.

California's 58 counties and 480[3] cities own and maintain 141,235[4] miles of local streets and roads. This is an impressive 82 percent of the state's total publicly maintained centerline miles (see Figure 2-6 below). About 146.4 billion[5] vehicle miles are traveled on this street network annually. That's approximately 45 percent of the total miles traveled every year in California. Conservatively, this network is valued at $271 billion.

Figure 2-6. Breakdown of Maintained Road Centerline Miles by Agency

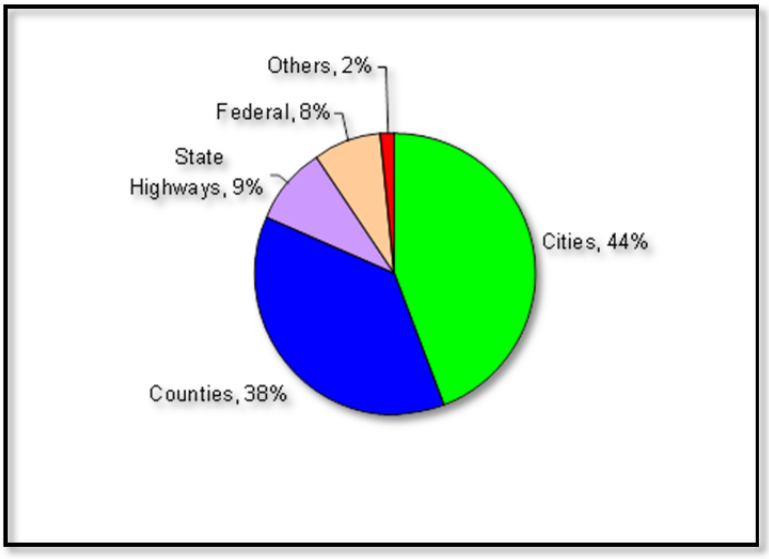

Table 2-2 shows the breakdown of lane-miles by functional classification, for local streets and roads and for unpaved roads. Arterials or collectors are categorized as major streets or roads, while residential streets and alleys are categorized as local streets and roads. Major and local lane miles are categorized as either rural or urban in character.

[3] Two new cities, Wildomar and Menifee, were incorporated in 2008 and were not included in the original 2008 study. They have been included in this update. Note too that San Francisco is traditionally counted as both a city and a county, but for purposes of analysis its data has been included as a city only.
[4] 2009 California Public Road Data – Statistical Information Derived from the Highway Performance Monitoring System, State of California Department of Transportation, Division of Transportation System Information, October 2010. The number of miles comes from this reference and survey results.
[5] Ibid

The distinction between urban and rural roads is defined by the United States Census Bureau (USCB). Rural areas have population centers with fewer than 5,000 people, or a population density below 1,000 people per square mile. The USCB defined two types of urban areas: Urbanized Areas (UAs) of 50,000 or more people and Urban Clusters (UCs) of at least 2,500 and less than 50,000 people. Rural encompasses all population, housing, and territory not included within an urban area. An urbanized or rural area may or may not contain an incorporated city, and the urban boundary does not necessarily follow city lines. Unpaved roads have either dirt or gravel surfaces.

Table 2-2. Breakdown by Functional Classification & Unpaved Roads

Lane-miles by Functional Class						
	Urban Major	**Urban Local**	**Rural Major**	**Rural Local**	**Unpaved**	**Total**
Cities	73,191	99,233	1,204	2,064	969	176,661
Counties	25,629	36,268	22,700	34,631	12,392	131,620
Totals	**98,820**	**135,501**	**23,904**	**36,695**	**13,361**	**308,281**

Note: San Francisco is included as a city only.

Table 2-2 shows that 79 percent of the total paved miles are in urban areas, with the remaining 21 percent in rural areas. It should come as no surprise that nearly 95 percent of rural roads belong to counties. Conversely, nearly 74 percent of urban roads belong to cities. Finally, unpaved roads comprise about 4.3 percent of the total network, and the vast majority of them belong to counties.

In addition to paved streets and roads, cities and counties also are responsible for storm drains, curbs and gutters, sidewalks, curb ramps, traffic signals, streetlights, traffic signs, sound/retaining walls, and other essential transportation infrastructure.

Finally, there are 12,562 local bridges[6] maintained by local agencies. These do not include structures such as culverts and bridges shorter than 20 feet.

Public Transit

For purposes of this report, "public transit" means local or regional transit systems not operated by Caltrans. It includes bus, rail, ferry, and paratransit

[6] www.dot.ca.gov/hq/structur/strmaint/

services that are open to the public and for which a fare is generally charged. It also includes human service transportation providers funded by Federal Transit Administration (FTA) section 5310; transit providers in non-urbanized areas and in Native American communities funded by the FTA section 5311; and intercity and commuter rail transit services (but not the state's planned high-speed rail system). A discussion of Intercity rail/Amtrak services needs and funding, including for the Capital Corridor, are not included in this public transit assessment. This is reported separately by Caltrans.

In FY 2008-09 (the last year for which published data is available from the state controller), more than 200 public agencies reported providing some kind of public transit service. These agencies included cities, counties, joint powers authorities, and special transit districts. According to the state controller, more than 1.3 billion passenger trips have been provided by California's public transit systems in each of the past five fiscal years. During the FY 2008-09, general public transit and specialized transit services carried nearly 1.5 billion passengers. Rail, street car, and trolley passengers have increased by 57 million, or 15.6 percent. Vehicle miles have increased by 23.1 percent from FY 2004-05 to FY 2008-09. The existing statewide transit services (including intercity bus and passenger rail) are shown in Figure 2-7. A more specific definition of regional transit corridors in the major metropolitan areas of Northern and Southern California is illustrated in Figures 2-8 and 2-9.

The most comprehensive and reliable resource for key asset holdings data for California's public transit agencies, including vehicles and guideways, is the FTA National Transit Database. Table 2-3 below summarizes the assets of California transit operators by mode:

Table 2-3: Distribution of California Transit Key Assets by Mode (2009)

Mode	Revenue Vehicles	Stations	Maintenance Facilities	Track Miles	Cross Traffic Crossings*
	Urban and Rural				Urban Only
Demand Response	5,159	0	105	0	0
Municipal Bus	11,400	154	152	0	0
Cable Car	47	0	1	9	0
Commuter Rail	427	105	4	981	609
Heavy Rail	773	59	6	302	0
Light Rail	541	239	11	499	475
Ferry Boat	16	11	3	0	0
Van Pool	1,448	0	2	0	0
Total	**19,811**	**568**	**284**	**1,791**	**1,084**

**Source: FTA National Transit Database; excludes mixed traffic crossing and right-of-way.*

Intercity Passenger Rail

Currently, California's passenger rail system combines intercity, commuter, and urban rail (see Figure 2-7, 2-8, and 2-9). In the future, high-speed rail projects will be added to complement other rail types to enhance the state's passenger rail system. While Caltrans assumes different roles in the operation of the many passenger rail lines in California, the state strives to make the passenger rail system as "seamless" as possible with excellent connectivity to other transportation systems. Designing for connectivity enters into virtually every aspect of operations, marketing, and capital planning. The California State Rail Plan describes the overall vision for the state's intercity and commuter rail systems, which along with freight rail share the same infrastructure. This infrastructure is generally owned by private railroads. Urban rail services, such as the Los Angeles County Metro Rail and the Bay Area Rapid Transit, operate on separate tracks and are locally controlled and funded. Consequently, they are not covered in the State Rail Plan. However, to further the implementation of a safe, integrated, and multimodal transportation system, it is essential that the intercity and commuter rail systems be well integrated with the urban transit rail and bus systems.

The state strives to make the passenger rail system as "seamless" as possible with excellent connectivity to other transportation systems.

Existing Intercity Rail Service

Intercity passenger rail service is a component of the state's overall transportation system, and it operates between several regions of the state. In California, Amtrak operates all state-supported intercity rail service. Caltrans provides operating funding for the three Amtrak California routes: the Pacific Surfliners (San Diego to San Luis Obispo), the San Joaquins (Bay Area/Sacramento to Bakersfield), and the Capitol Corridor (San Jose to Auburn). As part of its national intercity system, Amtrak also funds and operates four long-distance train routes that link California to other states. These routes include the Coast Starlight (Los Angeles to Seattle), California Zephyr (Emeryville to Chicago), Southwest Chief (Los Angeles to Chicago), and the Sunset Limited (Los Angeles to New Orleans). The state-supported routes connect with each other and with Amtrak's national intercity passenger rail network. Many passengers use state-supported routes as part of a longer rail trip. Coordinating schedules generates additional ridership and can improve overall efficiency.

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Oregon
Idaho
Utah
Nevada
Arizona
MEXICO
PACIFIC OCEAN
DEL NORTE
SISKIYOU
MODOC
HUMBOLDT
TRINITY
SHASTA
LASSEN
TEHAMA
PLUMAS
BUTTE
GLENN
SIERRA
NEVADA
COLUSA
YUBA
PLACER
LAKE
SUTTER
YOLO
SONOMA
NAPA
Sacramento Int'l Airport
AMADOR
ALPINE
SOLANO
CALAVERAS
MARIN
SAN JOAQUIN
TUOLUMNE
SAN FRANCISCO
Oakland Int'l Airport
San Francisco Int'l Airport
MARIPOSA
MONO
ALAMEDA
MADERA
SAN MATEO
MERCED
SANTA CRUZ
FRESNO
Fresno Yosemite Int'l Airport
SAN BENITO
INYO
TULARE
MONTEREY
KINGS
KERN
SAN LUIS OBISPO
SAN BERNARDINO
SANTA BARBARA
VENTURA
LOS ANGELES
Ontario Int'l Airport
San Bernardino Int'l Airport
Los Angeles Int'l Airport
Palm Springs Int'l Airport
RIVERSIDE
ORANGE
IMPERIAL
SAN DIEGO
San Diego Int'l Airport
Figure 2-7
California
Passenger Rail and
Regional Transit - Existing
Passenger Rail
Intercity Bus Routes
Metropolitan, Regional, and Primary Airports
0 10 20 40 60
Miles
N

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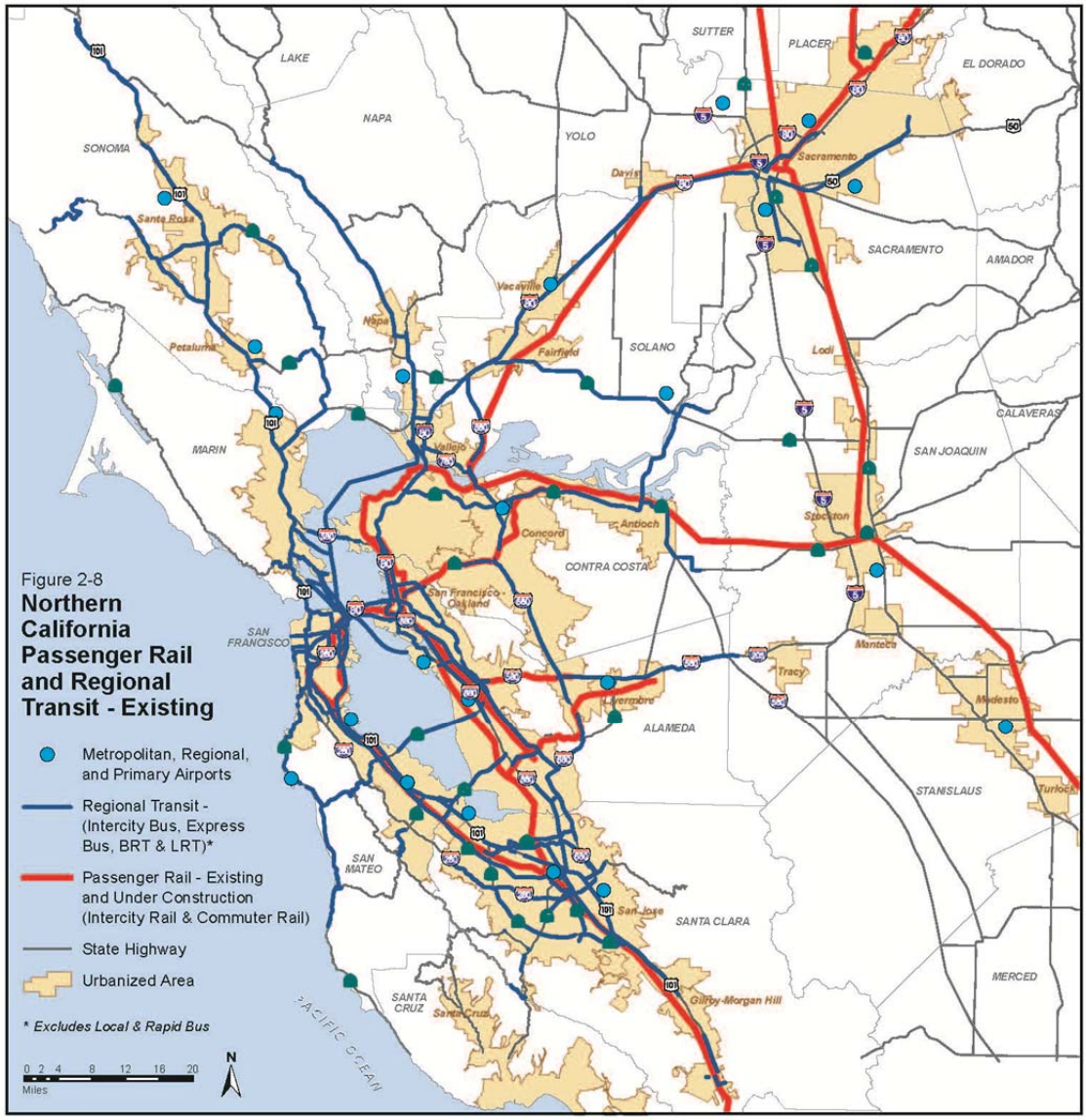
Figure 2-8
Northern California Passenger Rail and Regional Transit - Existing
Metropolitan, Regional, and Primary Airports
Regional Transit - (Intercity Bus, Express Bus, BRT & LRT)*
Passenger Rail - Existing and Under Construction (Intercity Rail & Commuter Rail)
State Highway
Urbanized Area
* Excludes Local & Rapid Bus
0 2 4 8 12 16 20
Miles
N
SUTTER
PLACER
EL DORADO
LAKE
NAPA
YOLO
SONOMA
Sacramento
Davis
SACRAMENTO
AMADOR
Santa Rosa
Vacaville
Napa
Petaluma
Fairfield
SOLANO
Lodi
CALAVERAS
MARIN
Vallejo
SAN JOAQUIN
Stockton
Concord
Antioch
CONTRA COSTA
San Francisco - Oakland
SAN FRANCISCO
Manteca
Tracy
Livermore
Modesto
ALAMEDA
STANISLAUS
Turlock
SAN MATEO
San Jose
SANTA CLARA
MERCED
SANTA CRUZ
Santa Cruz
Gilroy-Morgan Hill
PACIFIC OCEAN

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SANTA BARBARA
VENTURA
LOS ANGELES
SAN BERNARDINO
RIVERSIDE
ORANGE
SAN DIEGO
Lancaster - Palmdale
Santa Clarita
Victorville - Hesperia - Apple Valley
Camarillo
Thousand Oaks
Simi Valley
Los Angeles - Long Beach - Santa Ana
Riverside - San Bernardino
Hemet
Mission Viejo
Temecula - Murrieta
San Diego
PACIFIC OCEAN
San Ysidro POE
Otay Mesa POE
MEXICO
Figure 2-9
Southern California
Passenger Rail and Regional Transit - Existing
Metropolitan, Regional, and Primary Airports
Regional Transit - (Intercity Bus, Express Bus, BRT & LRT)*
Passenger Rail - Existing and Under Construction (Intercity Rail & Commuter Rail)
State Highway
Urbanized Area
* Excludes Local & Rapid Bus
0 2 4 8 12 16 20
Miles
N

Existing Commuter Rail Services

Commuter rail operates primarily within a single region of the state, serving regional and local transportation needs. Because commuter rail serves local and regional transportation needs, these services are planned and administered by local and regional transportation agencies. Various sources of funding are available at the local, state, and federal levels. Some capital funding is provided by the state through the State Transportation Improvement Program and other sources, but operating funding is provided by the local and regional agencies. California's existing commuter routes are COASTER (San Diego to Oceanside), Metrolink (Los Angeles, Orange, Riverside, San Bernardino, and Ventura), Caltrain (San Francisco-Gilroy), and Altamont Commuter Express (Stockton to San Jose).

By any measure, California is a key state in the national freight rail system.

Freight Rail

By any measure, California is a key state in the national freight rail system.[7] The major California seaports and border ports of entry are gateways to international trade. Freight rail and trucks provide intermodal connections to transport those goods to inland destinations and to/from other states. Unlike other modes of surface transportation, the freight rail system is largely in private ownership. The state tends to participate in freight rail projects through its role in administering federal funds and through a variety of partnerships. With revenues in 2009 of at least $378 billion, operating budgets for Class I (line haul freight) railroads rival budgets for many state departments of transportation.

With revenues in 2009 of at least $378 billion, operating budgets for Class I (line haul freight) railroads rival budgets for many state departments of transportation.

In 2009, California freight railroads operated over 6,842 miles of track (see Figure 2-10), and carried 5,736,600 carloads of freight totaling more than 140 million tons. The freight rail system in California is dominated by two Class I railroads: Burlington Northern Santa Fe Railway (BNSF) and Union Pacific (UP). BNSF and UP have extensive rail networks that connect California with the rest of the nation, particularly along corridors to the Southwest, Midwest, and Northwest. Including trackage rights, these two railroads operate over 5,509 miles in California. These Class I railroads are complemented by other short line (local) railroads, which include 15 local railroads, and eight switching and terminal railroads that operate over 1,333 miles of track.

[7] American Association of Railroads, http://www.aar.org/KeyIssues/Railroads-States.aspx.


Oregon
Idaho
Utah
Nevada
Arizona
MEXICO
PACIFIC OCEAN
DEL NORTE
SISKIYOU
MODOC
HUMBOLDT
TRINITY
SHASTA
LASSEN
TEHAMA
PLUMAS
BUTTE
MENDOCINO
GLENN
SIERRA
COLUSA
YUBA
NEVADA
LAKE
SUTTER
PLACER
YOLO
EL DORADO
SONOMA
NAPA
SACRAMENTO
AMADOR
ALPINE
SOLANO
MARIN
CONTRA COSTA
SAN JOAQUIN
CALAVERAS
TUOLUMNE
MONO
SAN FRANCISCO
San Francisco Int'l Airport
Oakland Int'l Airport
ALAMEDA
STANISLAUS
MARIPOSA
SAN MATEO
SANTA CLARA
MERCED
MADERA
SANTA CRUZ
FRESNO
SAN BENITO
INYO
TULARE
MONTEREY
KINGS
KERN
SAN LUIS OBISPO
SAN BERNARDINO
SANTA BARBARA
VENTURA
LOS ANGELES
Ontario Int'l Airport
Los Angeles Int'l Airport
Port Hueneme
Port of Los Angeles
Port of Long Beach
RIVERSIDE
ORANGE
IMPERIAL
SAN DIEGO
San Diego Int'l Airport
Port of San Diego
San Ysidro Port of Entry
Otay Mesa Port of Entry
Tecate Port of Entry
Calexico East Port of Entry
Andrade Port of Entry
Figure 2-10
California Goods Movement: Existing System
Goods Movement Major Rail
Interstate Highway
Ports
Commercial-Regional and Primary Airports
Port of Entry
0 10 20 40 60
Miles
N

BNSF is the nation's leader in intermodal freight. BNSF's Transcontinental route, which stretches east from the San Pedro Bay Ports (Los Angeles and Long Beach) is an integral part of the California freight rail network serving as the land bridge link from the ports to markets in Kansas City, Memphis, and Chicago. UP also ships a significant volume of intermodal freight, and it is the largest shipper of chemicals in the country. UP's Los Angeles Service Unit from the San Pedro Bay Ports is the primary route to UP's four major destinations: St. Louis, Chicago, Memphis, and New Orleans.

Intermodal shipments are shipments carried by more than one mode of transportation. Intermodal trains move truck trailers and containerized goods, including finished consumer goods, refrigerated foods, parts and tools for manufacturing, raw materials, and post-consumer scrap — almost anything that can be packed into a container car or truck trailer. Intermodal shipments play a major role in the diversion of truck traffic onto rail shipments and into the transportation logistics chain. In addition to providing an economic benefit to shippers, intermodal transport also helps reduce truck trips on highways. This reduces roadway damage, creates fuel savings, improves safety, reduces congestion, and provides environmental benefits.

Seaports

California's system of seaports (ports) stretches the length of the California coast, from Humboldt to San Diego, and it includes two river ports that serve the interior of the state (see Figure 2-11). There are 12 deep-water ports in California and three are internationally significant (Port of Los Angeles, Port of Long Beach and Port of Oakland). Nationally, the ports of Los Angeles and Long Beach are ranked first and second, and Oakland fifth, in terms of the number of Twenty-Foot Equivalent Units (TEUs) that are annually shipped through the ports. Combined, the Los Angeles/Long Beach port complex has the sixth highest volume of TEUs in the world. A TEU is a unit of cargo capacity commonly used to describe the capacity of container ships. It is based on the volume of a 20-foot long container that can be seen stacked on ships and hauled on trucks and trains.

California's nine other deep-water ports are much smaller. But each of them is still a substantial transportation facility with specialty services that are vital to their respective regions and to the industries they support. These industries include passenger cruises, liquid bulk/tankers, forest and agriculture products, autos, cement, machinery, and other freight and ship repair services. There is another tier of ports or harbors that are vital to

California's seafood industry and recreational boating, but they are not of a scale that qualifies them as being deep-water ports. As a result, they are not included in this document.

According to the California Marine and Intermodal Transportation System Advisory Council, more than 40 percent of the total containerized cargo entering the United States arrives at California ports. Nearly 30 percent of the nation's exports flow through ports in California. Port activities employ more than 500,000 people in California, and they generate an estimated $7 billion in state and local tax revenues annually. Nationwide, more than 2 million jobs are linked to California's public ports.

More than 40 percent of the total containerized cargo entering the United States arrives at California ports. Nearly 30 percent of the nation's exports flow through ports in California.

Figure 2-11. California's Public Ports

California's deep-water ports are located, from south to north, at San Diego, Long Beach, Los Angeles, Hueneme (Oxnard), Redwood City, San Francisco, Oakland, Richmond, Benicia, Stockton, West Sacramento, and Humboldt Bay. (The map shows one ship icon to represent both the Benicia and Richmond ports.)

California's ports are generally structured as self-supporting departments of a municipality or group of municipalities, or as a special district created by the state. The exception is the Port of Benicia, which is privately owned. Ports generate revenue from fees for dockage, wharfage, pilotage, storage, property rental, and other port services. Most of California's ports manage state tidelands on behalf of all Californians, and the revenue generated at these facilities is required to be reinvested back into port operations, systems preservation and maintenance, channel and berth dredging, air and water quality mitigation, facility expansion and modernization, public access, environmental resources management, and other related activities.

Nationwide, more than 2 million jobs are linked to California's public ports.

California's ports are competitive enterprises that are directly challenged by the nation's other ports, as well as the Panama Canal, for shipping business. They are continually challenged by changing technology; the physical limitations of their facilities; their access to deep water; the relentless action of moving water and silting; congested rail and highway connections to haul freight out of, and into, the ports; and many other factors. Each of these challenges can be translated into a fiscal cost to the ports that impacts their competitiveness.

Airports

The state does not own or operate airports, but it does monitor the condition of the aviation system. Airport planning and aviation system planning are related, but they are different endeavors. An airport master plan describes the activities and needs of a particular airport. An aviation system plan describes all the airports in a system or network of airports, and it guides other plans that consider regional capacity, surface transportation, the movement of freight, and overall economic development.

A key resource in multiple airport and aviation system planning is an analytical methodology known as "activity allocation." Activity allocation examines infrastructure requirements that are necessary to keep a system of airports performing safely while also meeting changes in technology, capacity, and market share. The state's Division of Aeronautics is interested in these three areas. The division uses activity allocation as a tool to quantify and recommend airport infrastructure projects that would benefit both general aviation (small aircraft) and commercial service airports. The Division of Aeronautics quantified and recommended airport infrastructure projects in September 2010, with the publication of the General Aviation System Needs Assessment Element (the assessment element). This report is a fiscally unconstrained look at proposed airport improvement projects over the next decade, and it is one of the elements that make up the California Aviation System Plan (CASP).

There are 219 general aviation airports and 30 primary (commercial) public use airports in California. About 80 percent of all take-offs and landings in California are made by general aviation aircraft.

In addition to preparing the assessment element report, the Division of Aeronautics prepares an Airport Capital Improvement Plan (ACIP) as part of the CASP. The ACIP is a ten-year listing of fiscally unconstrained capital projects that have been submitted to the Division of Aeronautics. The list is primarily based on general aviation airport master plans or other comparable long-range planning documents. Biennial updates to the capital improvement plan are used to help develop grant funding programs that are administered through the State Aeronautics Act. The CTC adopts the projects listed in the ACIP as a prerequisite for state funding.

In 2004, the United States traded $711 billion in goods with Canada and Mexico.

Land Ports (International Border Crossings)

Mexico and Canada are the United States' top two trading partners, and trade among the countries is expected to continue growing. The numbers tell an impressive story. In 2004, the United States traded $711 billion in goods with Canada and Mexico. That means that every day during that year, the North American Free Trade Agreement partners traded nearly $2 billion in goods and services, more than any other three nations in the world. Since 1990, the value of freight shipments between the United States, Canada, and Mexico has grown by 170 percent – increasing by an average of 8 percent annually. Every year, about 350 million people legally cross the border between the United States and Mexico, and more than 200 million people legally cross the United States-Canadian border.[8] The border crossings between California and Mexico, meanwhile, are an essential link for international trade.

Since 1990, the value of freight shipments between the United States, Canada, and Mexico has grown by 170 percent.

Otay Mesa Land Port of Entry. The Otay Mesa Land Port of Entry (Otay Mesa) in San Diego County is a federal multimodal inspection facility that provides service for pedestrians, passenger vehicles, buses, and commercial vehicles. Otay Mesa currently has 6 pedestrian and 12 passenger vehicle lanes, 1 bus lane, and 13 commercial inspection booths. This port of entry is one of the ten busiest in the country, and it is the busiest commercial border crossing on the California/Baja California border. In 2009, Otay Mesa handled inspections of 4,140,871 passenger

[8] Innovative Finance and Border Infrastructure, Jeffrey N. Shane, Under Secretary for Policy, U.S. Department of Transportation, FHWA/SCT Border Finance Conference, San Antonio, Texas, August 16, 2005.

vehicles, 684,425 trucks, 114 buses, and 1,979,982 pedestrians in the northbound direction.

San Ysidro Land Port of Entry. The San Ysidro Land Port of Entry (San Ysidro) in San Diego County is a federal multimodal inspection facility that provides service for pedestrians, passenger vehicles, buses, and freight rail. San Ysidro currently has 13 pedestrian lanes and 24 passenger vehicle lanes, including 1 bus lane and is the busiest land port of entry in the world. In 2009, San Ysidro handled inspections of 13,354,887 passenger vehicles, 72,450 buses, and 6,188,126 pedestrians in the northbound direction.

Tecate Land Port of Entry. The Tecate Land Port of Entry (Tecate) in San Diego County is a multimodal inspection facility that provides service for pedestrians, passenger vehicles, buses, commercial vehicles, and freight rail (the rail line crosses at Campo, located east of Tecate). Tecate currently has two passenger vehicle lanes, two pedestrian lanes, and one commercial vehicle lane. In 2009, Tecate handled inspections of 898,276 passenger vehicles, 65,039 trucks, and 499,709 pedestrians in the northbound direction.

Calexico Land Port of Entry. The Calexico Land Port of Entry (Calexico) in Imperial County is a multimodal inspection facility that provides service for pedestrians, passenger vehicles, and rail. The freight rail service operates regularly. Calexico currently has 11 passenger vehicle lanes, 1 bus lane, and 4 pedestrian lanes. In 2009, Calexico handled inspections of 4,839,287 passenger vehicles, 25 buses, and 3,904,913 pedestrians in the northbound direction.

Calexico East Land Port of Entry. The Calexico East Land Port of Entry (Calexico East) in Imperial County is a multimodal inspection facility that provides service for pedestrians, passenger vehicles, and commercial vehicles. The passenger facility currently has nine passenger vehicle lanes, one bus lane and four pedestrian lanes. In 2009, Calexico East handled inspections of 2,953,733 passenger vehicles, 276,894 trucks, 2,451 buses, and 33,930 pedestrians in the northbound direction.

Andrade Land Port of Entry. The Andrade Land Port of Entry (Andrade) in Imperial County is a multimodal inspection facility that provides service for pedestrians, passenger vehicles, and commercial vehicles. Andrade has two passenger vehicle lanes, two pedestrian lanes, and one commercial vehicle lane. In 2009, it handled inspections of 449,490 passenger vehicles, 284 trucks, and 1,517,727 pedestrians in the northbound direction.

Major Intermodal Facilities

In addition to the individual types of transportation systems discussed above, it was recognized that a number of "major intermodal facilities" are being planned and developed in various parts of the state. These facilities appear to fall into two broad sub-categories:

- Freight intermodal facilities, which typically provide facilities and services for the transfer of goods between rail and trucks. They also may include direct access to seaport facilities.
- Passenger intermodal facilities, which typically provide facilities and services for passenger transfers between rail and bus services. They also may include direct access to airport and seaport facilities.

The survey of MPOs and RTPAs included a request for information regarding planned intermodal facilities.

Bicycle and Pedestrian Systems

Bicycle and pedestrian facilities are no longer "alternatives" to the automobile. They are integral components of the larger transportation system. Analysis of data from the National Household Travel Survey found that 660 million bicycle trips occur annually in California. That's about 1.4 percent of all trips. The vast majority of cities and counties have bicycle and pedestrian plans. MPOs and RTPAs also have such plans. These bicycle and pedestrian plans are either part of their regional transportation plans, or in addition to those plans. Municipalities and planning organizations are still working to standardize the collection of bicycle and pedestrian count and performance data, but there is a growing body of statistical information at local and regional levels that indicates a resurgence in bicycling and walking throughout the state. Without a doubt, efforts to expand facilities that accommodate bicyclists and pedestrians of all ages and skill levels have helped promote this resurgence.

Bicycle and pedestrian facilities are no longer "alternatives" to the automobile. They are integral components of the larger transportation system.

Bicycle and pedestrian facilities increasingly are being considered, planned, and included as normal parts of transportation projects. Notable projects include the relatively new Benicia-Martinez and Carquinez Bridges, which included bicycle/pedestrian facilities on its spans from the earliest design phases. The new East Span of the Oakland San Francisco Bay Bridge includes a pathway. It is not only large projects that provide key connectivity, but also numerous smaller pathways, obscure shoulder-widening projects, and intersection upgrades that include bicycle and pedestrian facilities that collectively promote walking and bicycling. Over time, California is piecing together a comprehensive network of bicycle and pedestrian facilities. This makes these modes a viable transportation choice for more people, more of the time.

High-Speed Rail System

Inspired by successful high-speed train systems worldwide, California's electrically-powered high-speed trains will help the state meet the ever-growing demands on its transportation infrastructure. They initially will run from San Francisco to Los Angeles/Anaheim via the Central Valley, and later to Sacramento and San Diego. High-speed trains will travel between Los Angeles and San Francisco in less than 2 hours 40 minutes. They will travel up to 220 miles per hour, connect with other transportation alternatives, and provide an environmentally-friendly option to traveling by airplane or car.

High-speed trains will travel between Los Angeles and San Francisco in less than 2 hours 40 minutes.

The system is being designed to include 800 miles of track and up to 24 stations. It is undergoing the most thorough environmental review process of any rail project in the nation. Due to the large scope of the project, the planning process has proceeded in phases. First, a program-level review assessed the need and service area for a statewide system, presented broad policy choices, and identified corridors for further study. Second, a project-level review in more detail determined the best alignment and station locations within each of nine system sections. Community input also was sought, resulting in the best system for all Californians.

Chapter 4 of the Needs Assessment includes information provided by the California High-Speed Rail Authority regarding the estimated costs, available revenues, and potential outcomes of these investments.

Transportation Facilities on Tribal Lands

As part of the overall Needs Assessment, Caltrans staff obtained information regarding planned transportation facilities on Tribal Lands. The result of this analysis is reported in Chapter 5.

CHAPTER 3
TEN-YEAR TRANSPORTATION SYSTEM NEEDS ANALYSIS

This chapter primarily analyzes what California's transportation systems need over the next ten years (2011 to 2020). This analysis includes:

- Estimates of available revenues over the planning period
- Estimates of costs for needed projects and programs, broken out into three types:
    - System preservation (includes major rehabilitation and restoration projects and ongoing maintenance costs, where available)
    - System management
    - System expansion
- A summary of total estimated costs and revenues during the planning period

A. REVENUES

Predicting the financial future is a difficult and speculative exercise, even in good economic times when funding for public projects is healthy. This point needs no underscoring today, in the wake of the serious financial crisis that devastated Wall Street in the fall of 2008 and has since spread to the California state budget, its broader economy, and other markets across the globe. Still, California and other states must estimate how much money will be available to support critically needed transportation investments over the next decade. For this Statewide Transportation System Needs Assessment, the revenue forecasts are realistic. They are based primarily on the financially constrained revenue forecasts included in long-range plans prepared by each of the state's Metropolitan Planning Organizations (MPOs). When the statewide revenue forecasts were prepared, the individual estimates were aggregated and then adjusted from a 25-year time horizon to the ten-year time horizon of this needs analysis.

Over the next ten years, it is estimated that the state of California will raise $242.4 billion from federal, state, and local sources for investments in transportation infrastructure.

Transportation infrastructure in California is funded by a variety of state, local, and federal sources. Together, these revenues total $242.4 billion over the ten-year period, or about $24 billion annually. Some background on the funding sources is provided below.

California and other states must estimate how much money will be available to support critically needed transportation investments over the next decade.

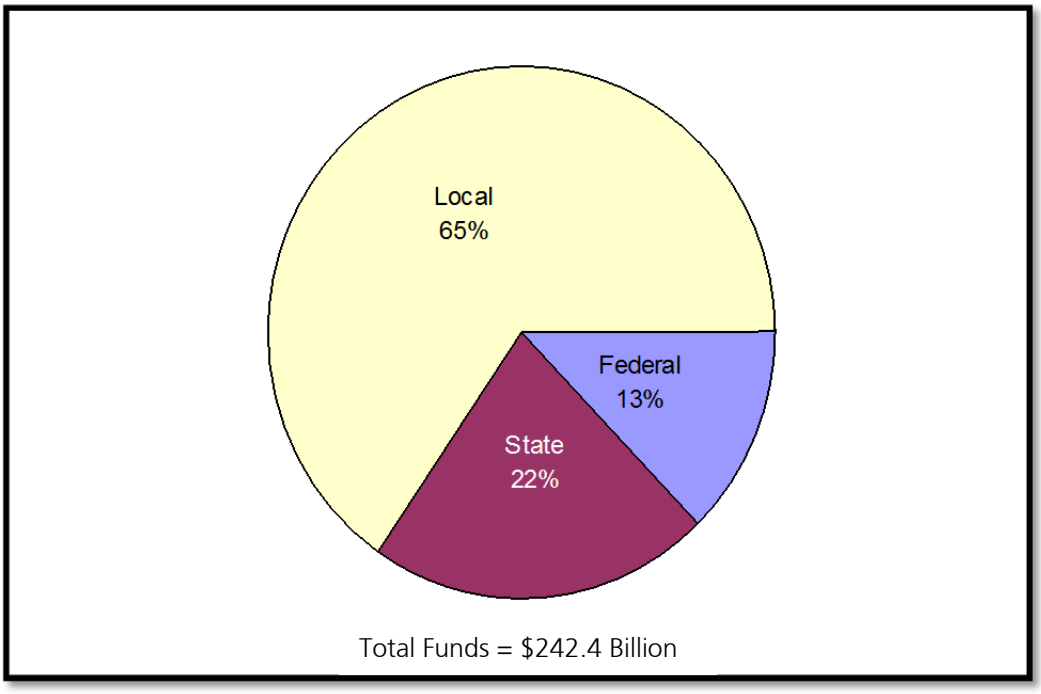
- State Funds: Ongoing state funds are raised primarily from a state excise tax on gasoline and diesel fuels, weight fees, and the equivalent of most of the state sales tax on motor fuels, which is now translated into a higher excise tax. Additional sources of state funding can include revenues from the sale of bonds and specific appropriations from the General Fund. State revenues provide about 22 percent ($53.1 billion) of the total funds devoted to transportation infrastructure.
- Local Funds: Local funds for transportation are raised from a variety of sources of public revenue. These include (but are not limited to) a statewide 0.25 percent tax on the sale of all goods and services, additional local sales taxes, property taxes, and transit fares. Local funds account for about 65 percent ($158.4 billion) of all revenues for transportation infrastructure.
- Federal Funds: The federal government generally apportions these funds to California based on the state's contribution of federal excise taxes on motor fuels to the Federal Highway Trust Fund. California is projected to receive $30.9 billion in federal transportation funds over the ten-year time period. This accounts for nearly 13 percent of total funding to the state's transportation system.
- Private Funds: Private funds were not included in this analysis. However, certain projects may be appropriate candidates for tolling and public-private partnerships (P3s). For public toll projects, the toll agency will typically obtain construction financing by issuing bonds secured by future toll revenues. For toll concession P3s, including those awarded in the 1990's under Streets & Highways Code section 143,

the private entity will typically invest its own capital and will borrow funds secured by future toll revenues as needed for construction. Depending on the revenue forecasts, toll projects might be fully self-funding, might bring in excess funds that will be available for other public projects, or might require state and federal support. For availability payment P3s such as the Presidio Parkway, the private sector invests capital and borrows funds to pay for construction based on a future stream of public funds. In all cases, the use of tolling or P3s to provide project funding should free up the agency's other sources of funding for other projects.

Over the next ten years, it is estimated that the state of California will raise $242.4 billion from federal, state, and local sources for investments in transportation infrastructure. As shown in Figure 3-1, the majority of this funding ($158.4 billion) is expected to come from local sources. State and federal sources are expected to provide $84 billion.

It is important to note that these revenue estimates do not assume sources that are not currently authorized. The revenues also do not include high-speed rail funding, because this funding is addressed separately as part of Chapter 4.g

Figure 3-1. California Transportation Funding by Source



B. SYSTEM PRESERVATION

Introduction

California's transportation system is in jeopardy. Our aging infrastructure includes roads, highways, bridges, public transit vehicles and facilities, passenger and freight rail, airports, harbors, and international ports of entry. Streets and highways carry huge amounts of traffic, and they absorb continual wear from heavy trucks and other vehicles. Other transportation infrastructure is called upon to satisfy increasing demands for public transit and to move people and goods by air and sea, along rail lines, and across borders at United States ports of entry. At the same time, the costs to preserve the infrastructure that serves these needs are soaring, even though construction bids are lower than they have been in years. Ongoing budget shortfalls have forced agencies to defer maintenance, leading to roads and bridges that are in worse shape by the time they are rehabilitated. Investments to preserve transportation systems simply have not kept pace with the demands on them, and this underfunding has led to the decay of one of California's greatest assets. As the transportation system grows increasingly unreliable, the state will become less attractive to businesses, residents, and tourists, exacerbating our revenue problems at a time when we can least afford it.

Investments to preserve transportation systems simply have not kept pace with the demands on them, and this underfunding has led to the decay of one of California's greatest assets.

Preserving these systems is an essential investment:

- To ensure the reliability of our highways, roads, and bridges, and the safety of the people who travel on them;
- To keep our rail cars and locomotives moving, and to ensure their safe operation and our compliance with federal requirements while reducing the demand on our highways and roads;
- To support the economic vitality of the businesses that depend on the delivery of goods;
- To maintain safety at airports across the state and support the communities and economies that rely on them;
- To promote the efficient flow of commerce and people at international borders while observing the requirements of homeland security;
- To ensure efficient port operations and ensure that our ports remain competitive in the global marketplace; and
- To continue the uninterrupted operation of transit systems.

California must meet the challenge of its decaying infrastructure with a large increase in capital investments by all levels of government, as well as resources from the private sector. Failing to adequately invest in the restoration of the state's roads, highways, bridges, airports, seaports, railways, border crossings, and public transit infrastructure will lead to further decay and a deterioration of service from which it may take many

California must meet the challenge of its decaying infrastructure with a large increase in capital investments by all levels of government, as well as resources from the private sector.

years to recover. Allowing this to happen obviously would make California a less-attractive destination. The future of the state's economy and our quality of life depend on a transportation system that is safe and reliable, and which moves people and goods efficiently.

The future of the state's economy and our quality of life depend on a transportation system that is safe and reliable, and which moves people and goods efficiently.

Framework for Transportation System Preservation

Background

California's economy is larger than the economies of all but seven nations worldwide, with a gross domestic product of $1.9 trillion per year.[1] The backbone of this economic strength is an extensive system of roads, highways, bridges, airports, seaports, railways, border crossings, and public transit.[2] This system must assure residents that they have a safe and efficient way to get to work and school, to join family and friends, and to travel to recreational opportunities throughout the state. It also must serve tourists, while simultaneously providing customers, suppliers, and employees with reliable access to businesses.

As of August 2011, California had an unemployment rate of 12.1 percent, the second highest in the nation.[3] The state's population, meanwhile, is more than 37 million and growing.[4] As our citizens get back to work and our population continues to grow, demands on these transportation systems only will increase. California must preserve its system of roads, highways, bridges, airports, seaports, railways, border crossings, and public transit if we want to foster economic growth, avoid business relocations, and ensure the safe, reliable mobility that is needed to improve the quality of life for all Californians.

As our citizens get back to work and our population continues to grow, demands on these transportation systems only will increase.

As discussed previously, a decade ago the California Transportation Commission (CTC) developed an inventory of ten-year unmet funding needs for California's transportation systems.[5] This was in response to Senate Resolution 8 (Burton, 1999) and in consultation with the California Department of Transportation (Caltrans) and the state's regional transportation planning agencies. The 1999 inventory included an estimate of the unfunded costs to rehabilitate state highways, local streets and roads, the state's intercity rail programs, and urban, commuter, and regional transit systems.

[1] Marc Lifsher, "California economy still world's eighth-largest, despite recession," *Los Angeles Times*, December 2, 2010.
[2] Ibid.
[3] Regional and State Employment and Unemployment Summary, United States Department of Labor, Bureau of Labor Statistics, September 16, 2011.
[4] 2010 Census, Table 2. Resident Population of the 50 States, the District of Columbia, and Puerto Rico, U.S. Census Bureau, December 21, 2010.
[5] "Inventory of Ten-Year Funding Needs for California's Transportation Systems," California Transportation Commission, May 5, 1999.

No subsequent inventory of unmet funding needs has been developed until now.

Use of California's Transportation System

Californians rely enormously on the roads, rails, ports, and transit systems in the state.[6]

We experience 485 million hours of delay from highway congestion in the Los Angeles-Long Beach-Santa Ana urban area, at an average cost of $807 per person, the highest of any urban area in the nation.

- We have 19,706,000 automobiles and 13,188,000 light and medium trucks registered in California, more than any other state in the nation.
- There are 742,030 trailers and semi-trailers registered in California, more than any state in the nation.
- We travel 327 billion highway vehicle miles every year, more than any state in the nation.
- We take 698 million annual transit trips in the Los Angeles-Long Beach-Santa Ana urban area, the second highest urban area transit ridership in the nation.
- We experience 485 million hours of delay from highway congestion in the Los Angeles-Long Beach-Santa Ana urban area, at an average cost of $807 per person, the highest of any urban area in the nation.
- We house three of the busiest containership ports in the nation, at the ports of Los Angeles, Long Beach, and Oakland.
- We welcome 27 million incoming personal vehicles crossing at the international border with Mexico, the second highest among bordering states.
- We catch trains at three of the top ten Amtrak stations in the nation for the number of passengers handled, in Los Angeles, Sacramento, and San Diego.
- We fly 25,292 general aviation and air taxi aircraft with 2,651,000 of hours flown, the highest of any state in the nation.
- We manage more than 40 percent of the containerized seaborne cargo that arrives in the United States.

We have 19,706,000 automobiles and 13,188,000 light and medium trucks registered in California, more than any other state in the nation.

Huge demands are placed on California's transportation systems. Preserving the functionality of these systems is vital to the continued mobility and prosperity of the state.

[6] State Transportation Statistics 2009, U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics.

Purpose of this Analysis

The Transportation System Preservation Analysis is intended to develop a clear and current view of what we need to do to rescue and preserve California's transportation systems. In this section of Chapter 3, it will estimate the value of unmet preservation needs over the next ten years, analyze the current condition of the state's transportation infrastructure, set performance goals, and anticipate the consequences of continuing to underfund the cost of preservation. Cost estimates are in 2010 non-escalated dollars, and they represent the need above the current funding available.

This analysis of unmet funding to preserve the state's transportation system is one element of a larger study of California's transportation infrastructure that discusses managing the existing transportation system (system management) and expanding the existing transportation system (system expansion). The evaluations for system management and expansion are being conducted by others, and they are not part of this discussion.

Definition of System Preservation and System Elements

The unmet needs estimate for preserving the state's transportation system incorporates three elements: preventive maintenance, rehabilitation and reconstruction, and regulatory mandates.

- Preventive maintenance applies cost-effective treatments to existing transportation infrastructure to help preserve it, slowing down future deterioration and maintaining or improving the functional condition of the infrastructure (without significantly increasing the structural capacity).[7] Preventive maintenance strategies are typically applied to assets that are in good condition and have significant remaining service life. This ensures the structural integrity of transportation systems that serve people and freight.
- Rehabilitation and reconstruction strategies are applied to transportation infrastructure that is in fair to poor condition. The goal here is to restore assets to an acceptable operating condition.
- Preservation efforts also include the cost of regulatory mandates. Examples of regulatory mandates include storm water retrofitting required by the Clean Water Act (CWA) and state water quality control boards, and improvements required by the Americans with Disabilities Act (ADA).

Transportation system elements include state highways and interstates, local streets and roads, intercity passenger and freight rail, transit systems, commercial and general aviation airports, seaports, and border crossings.

[7] American Association of State Highway Transportation Official Standing Committee on Highways, AASHTO, 1997.

Benefits of System Preservation

Every piece of transportation infrastructure has an expected service life, but these components only will achieve their expected life span when they are properly maintained. By failing to invest in preserving these expensive assets, we fail to fully benefit from the initial investment that taxpayers make. In general, it is more cost-effective to preserve infrastructure that is still in good to fair condition, than to wait until systems have decayed to a poor condition and require extensive and expensive rehabilitation and reconstruction. For example, maintaining a road in good condition is easier and less expensive than repairing one in poor condition. The cost to reconstruct a road (expressed as the cost of repairing a single lane for one mile) after 25 years can be more than three times the cost of periodically preserving the road over the same 25 years. Ongoing preservation efforts over the 25 years also can extend the expected service life of the road for another 18 years.[8]

Every piece of transportation infrastructure has an expected service life, but these components only will achieve their expected life span when they are properly maintained.

The timely preservation of transportation systems enhances their ability to withstand hazards of all types, both natural and human-caused, and to return to service promptly following such events. It also prevents transportation infrastructure from falling into poor condition, which slows the delivery of freight, makes supply chains unpredictable, diminishes the competitiveness of California businesses, and ultimately increases the cost of consumer goods.

Homeland security and defense also benefits from a reliable and functional transportation network. This was the driving force, more than 50 years ago, behind the creation of the nation's interstate highway system in 1956. The National Interstate and Defense Highways Act (Public Law 84-627) launched the largest public works project in American history up until that time.

Unfortunately, deferred maintenance because of funding shortfalls has caused many elements of the transportation system to fall into poor condition, and they now require expensive reconstruction to bring them back to acceptable operating conditions.

8 "Rough Roads Ahead," American Association of State Highway Transportation Officials (AASHTO), 2009, pg. 27.

Transportation System Elements

State Highways

As the owner-operator of one of the largest transportation networks in the country, Caltrans is responsible for maintaining and preserving more than 50,000 lane-miles of state highways and 240,000 acres of roadside. This includes pavement, bridges, and other roadway features such as safety roadside rest areas, culverts, signage, lighting, highway planting, etc. As the transportation funding environment continues to move toward increased fiscal accountability, increased consumer expectations, declining revenue and funding opportunities, and advances in technology, Caltrans is adopting more efficient and systematic Transportation Asset Management (TAM) practices to better manage all the state's transportation assets. The agency's goal is to maximize its investments in one of California's greatest assets, its transportation system. TAM is defined by the Federal Highway Administration as "a business process and a decision-making framework that covers an extended time horizon, draws from economic as well as engineering, and considers a broad range of assets. The TAM approach incorporates the economic assessment of trade-offs among alternative investment options, and it uses this information to make cost-effective investment decisions."

More than one quarter of California's lane-miles are described as "distressed."

Current Condition of the System. More than one quarter of California's lane-miles are described as "distressed" in the 2007 Pavement Condition Survey report (distressed lane miles are those with bad structural conditions or that provide poor ride quality to users). Pavement distress is commonly associated with significant rutting, cracking, potholes, or other signs of deterioration. According to this report, 26 percent of California roadways (12,998 lane miles) are distressed and require rehabilitation and reconstruction work; 32 percent (16,055 lane miles) require pavement maintenance; and 41 percent (20,424 lane miles) are in good condition.

Bridge needs fall into one of three general classes: work that can be accomplished by Caltrans crews, major maintenance or preventive work, and rehabilitation/replacement. Nearly 75 percent of the state's bridges have no needs, or they require work that can be addressed by our crews. But about 20 percent of the bridges require major maintenance or preventive work. The remaining 6 percent of the bridges need either major rehabilitation or they need to be replaced entirely.

Culvert and drainage system maintenance falls into one of the following general classes: major maintenance or preventive, and rehabilitation/ replacement. Currently, about 36 percent of the 58,000 culverts assessed need work in one of two areas:

- 23 percent (13,340) of the state's culverts need major maintenance or preventive work.
- 13 percent (7,540) of the state's culverts need rehabilitation work or need to be replaced.

Performance Goals. Caltrans has developed quantifiable performance goals for each component of the state highway system, as shown in Table 3-1.

Table 3-1. Performance Goals of the State Highway System

Transportation Asset	Performance Goal
Major Damage Repair	Repair new damage within 180 days.
Collision Reduction	Reduce the collision rate by 10 percent and roadside worker fatalities to zero.
Regulatory Mandates	Comply with laws and regulations.
Bridge	Reduce distressed bridges to 3 percent (400 bridges).
Roadway	Reduce pavement distress to 10 percent of the system (5,000 lane miles).
Roadside	Reduce distressed landscaping to 20 percent (6,000 acres) of the system, and address all safety and mandated needs at Safety Roadside Rest Areas.
Facilities	Rehabilitate 25 facilities in ten years.

Funding Needs: Rehabilitation and Reconstruction. The funding to pay for most maintenance and repair on the state highway system comes from the State Highway Operation and Protection Program (SHOPP). The sole funding source for that program is the State Highway Account (SHA), which is funded primarily through excise taxes on gasoline and diesel fuel. SHA funding is declining because of reduced fuel consumption, and funding shortfalls in the Federal Highway Trust Fund. The projected funding available from the SHA for the preservation of state highway infrastructure is estimated at $1.8 billion a year. However, the need for the rehabilitation and reconstruction of the state highway system is $70.38 billion for fiscal years (FY) 2012-13 through FY 2021-22 (see Table 3-2). This amount represents the current cost estimate for capital construction, right-of-way acquisition, and support for project development and construction engineering. This estimate does not include expected future increases in construction costs.

Table 3-2. Summary of Ten-Year State Highway Systems Rehabilitation and Reconstruction Funding Needs

Transportation Asset	Needs (in $ billions)
Major Damage Repair	$ 3.46
Collision Reduction	$ 5.17
Regulatory Mandates	$ 6.82
Bridges	$ 11.86
Roadway	$ 33.18
Roadside	$ 4.84
Facilities	$ 1.67
Other (Minor Program and Planning)	$ 3.38
TOTAL	**$ 70.38**

Funding Needs: Maintenance. In addition to rehabilitation and reconstruction, the state also is responsible for maintaining the state highway system. Funding needs for maintenance activities are illustrated in Table 3-3.

In order to address the maintenance needs of culverts, there is currently $23 million available annually for drainage maintenance and repairs.

Table 3-3. Summary of Ten-Year State Highway Systems Maintenance Funding Needs[9]

Transportation Asset	Needs (in $ billions)
Pavement	$ 4.60
Bridges	$ 2.01
Drainage	$ 2.67
TOTAL	**$ 9.28**

Consequences. As the roadways and bridges on the state highway system age and near the end of their service lives, the demands of vehicle and truck traffic are increasing. The result is accelerating deterioration. Compounding this is the deferment, due to a lack of funding, of necessary rehabilitation and repair of transportation infrastructure. Ever increasing traffic demands on aging and poorly maintained components lead to poor performance, as well as higher costs to users whose vehicles are more quickly worn or damaged or consume more fuel per mile. When needed repairs are eventually made, overall costs are ultimately higher. In addition, the cost of meeting legal, statutory, and regulatory mandates is a significant contributor to the cost of ten-year needs. The following is a description of the consequences of funding limitations on each of the infrastructure elements in the state highway system.

[9] California Department of Transportation, Five-Year Maintenance Plan

Major Damage Repair. The need for major damage repair is based on average expenditures over the last ten years (excluding major disasters, which are assumed to qualify for federal aid). The following are major consequences of the funding shortfall:

- Delays to the construction of programmed projects in other SHOPP categories, if additional emergency response funding is needed
- Increases in the need for emergency repairs as the maintenance funds available through the SHOPP decline

Collision Reduction. Collision reduction programs are intended to reduce the number and severity of collisions that occur on the state highway system. The safety improvement projects are selected based on collision history and a cost/benefit analysis that compares the savings associated with reduced collisions with the cost of the project. Typical projects include installing traffic signals, safety devices, or median barriers; improving curve alignments; reducing factors that contribute to run-off-road type collisions; correcting wet pavement problems; and adding worker safety features.

The available funding is enough to address emergencies, but the shortfall in funding means that nearly 58 percent of projects designed to reduce the severity of collisions (those that would address run-off-road potential or upgrade existing safety features, for example) will be delayed. These delays translate into a missed opportunity to eliminate more than 120 fatal and injury collisions, and to avoid $113 million per year in collision costs.[10]

Grant funding through the hazard elimination program could add about $25 million per year to the total available for projects to reduce the severity of collisions. However, these funds only can apply to capital construction, which leaves the responsibility for the support costs with the SHOPP. The program as a whole still will have a shortfall that will result in delaying more than 38 percent of the collision severity reduction projects. This is a missed opportunity to eliminate more than 80 fatal and injury collisions, and avoid $77 million per year in collision costs.

Legal and Regulatory Mandates. The mandates programs meet the requirements of various court orders, state and federal laws and regulations for storm water, the ADA, and the relinquishment of redundant state highway system segments to local agencies.

[10] Collision costs used by Caltrans are based on the Comprehensive Cost Method, accounting for the monetary effects of collisions and the effects of collision on a person's whole life (loss of production, quality of life, etc.)

The funding shortfall ultimately delays compliance with the federal CWA and other laws, resulting in the risk of enforcement actions and court orders. Failure to meet the CWA most likely will yield an enforcement action, which will require compliance and penalties that are typically three times the cost of the repairs. Delaying compliance with legal requirements damages our credibility with regulatory agencies, and it delays project delivery and increases our delivery costs. The current plan funds only 50 percent of the known Total Maximum Daily Loss needs, and none of the areas of special biological significance needs. Penalties for violating the CWA can be as high as $50,000 per day for each violation, and imprisonment.

Currently Caltrans is facing the following legal challenges:

- Cease and Desist Order No. 2001-198, California Department of Transportation, San Joaquin Hills Transportation Corridor (SR 73), which affects District 12 in Orange County
- State Water Resources Control Board letter of October 18, 2004, to the California Department of Transportation (Caltrans) to cease and desist storm water discharges into areas of special biological significance
- The Soil Stabilization Protocol Annual Element, in accordance with paragraph 7, (e), as stipulated in the July 25, 1996, court order, affecting District 7 in Los Angeles, the largest metropolitan area in California
- Consent Decree-United States America vs. California Department of Transportation Case number 96-1440-IEG and Case number 97-0037-IEG, affecting District 11 in San Diego, which is another of the larger metropolitan areas in California

At the constrained funding level for ADA improvements, Caltrans commits only to the minimum required funding level for the 2010 ADA lawsuit settlement. If funding levels are further reduced for ADA needs, Caltrans will be in violation of the 2010 settlement agreement and would face additional lawsuits and liability.

Bridge Preservation. The bridge programs preserve 12,559 highway bridges in California. The available funding in the SHOPP is insufficient because of aging infrastructure, the effects of increasing traffic, and vulnerability to earthquakes and scour.

The major consequence of the funding shortfall is that bridges needing rehabilitation or replacement will increase by 15 percent between now and 2020.

An additional consequence of underfunding the bridge program is that bridges that are not maintained in a timely manner eventually require much more expensive rehabilitation and repair.

Failure to address major rehabilitation or replacement needs can result in unplanned closures or even the collapse of bridges. Under either scenario, the costs to Caltrans and users of the transportation system are significant.

More than one quarter of state highways need major repair.

Roadway Preservation. The roadway programs preserve the nearly 50,000 lane miles of state highways and 205,000 drainage culverts. The following are major consequences of the funding shortfall:

- More than one quarter of state highways need major repair. Twenty-six percent of the pavement on the state highway system has deteriorated to the point where it needs to be reconstructed to return to an acceptable condition.
- Increased cost to the traveling motorist. Motorists pay twice for poor pavement conditions; once for the additional vehicle maintenance and operating costs resulting from driving on pavement in poor condition, and a second time for the higher costs to reconstruct highly degraded pavement.
- Increased risks of highway closures due to culvert collapse, delaying motorists, and costing taxpayers for expensive major repairs.

Roadside Preservation. The roadside programs address worker and motorist safety, environmental commitments, and mandates on about 221,000 acres of roadsides, 29,183 acres of highway planting, and at 87 safety roadside rest areas. Roadside SHOPPs were significantly changed in 2003 to focus primarily on worker safety. These programs do not fund aesthetics improvements. Caltrans will not be able to address commitments to roadside safety and stewardship because of the funding shortfall. Between 1972 and 2009, 84 percent of Caltrans employee fatalities involved maintenance employees, and 35 percent of maintenance injuries occurred when employees were doing roadside tasks.

The following are major consequences of the funding shortfall:

- Continued exposure of workers to traffic because of:

  Delayed completion of needed worker safety improvements at 3,280 locations

  More and longer maintenance tasks on 16,600 acres of highway planting

- Increased costs to Caltrans from:

  More regulatory agency compliance fines and third-party lawsuits

  Slower relinquishment of environmental mitigation sites to resource agencies

Greater potential for roadside fires that may spread to adjacent areas

Slower compliance with herbicide reduction goals, because of the continued reliance on outdated roadside design strategies

Unabated exposure of drowsy and distracted drivers to collisions, because of our failure to add sufficient parking to the rest area system

Facility Improvements. The facilities programs preserve the 444 buildings that support the operations and maintenance of the state highway system. The following are major consequences of the funding shortfall:

- More code violations in office buildings, materials testing laboratories, and equipment shops, all of which increases the risk of litigation and public agency citations
- Delayed repairs to salt and sand storage facilities, which causes slower response during winter operations
- The continued use of badly outdated and inadequate maintenance facilities, which exposes employees to poor working conditions and limits their ability to do their jobs

Local Roads

Current Condition of the System. The condition of local streets and roads is quantified using the pavement condition index, which is calculated on a scale of 0 (failed) to 100 (excellent). This is weighted by the pavement area, specifically; longer roads have more weight than shorter roads when calculating the average pavement condition index.

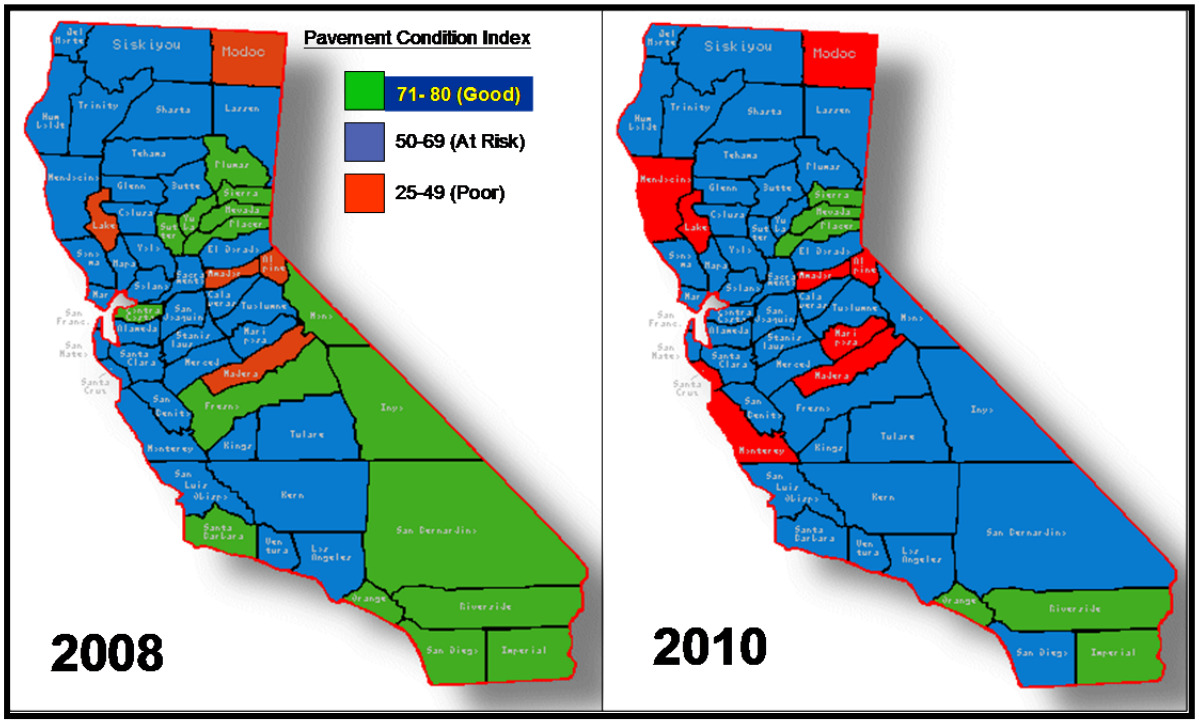
Condition categories often are used to describe the pavement condition index ranges. Figure 3-2 shows the thresholds that are used widely in the industry, and which were also used in this study. The descriptions used for each category are typical of most agencies, although there are many variations on this theme. For example, it is not unusual for residential streets to have slightly lower thresholds, indicating that they are held to lower condition standards when compared to major arterials.

The current (2010) pavement condition index is 66, about 2 points below the range found in 2008. This rating is firmly in the "at risk" category.

Figure 3-2. PCI Categories

Figure 3-3 shows the pavement conditions by county, for both 2008 and 2010. It should be emphasized that the index rating reported in Figure 3-3 is the weighted average for each county and includes the cities within the county

Figure 3-3. Average Pavement Condition by County for 2008 and 2010



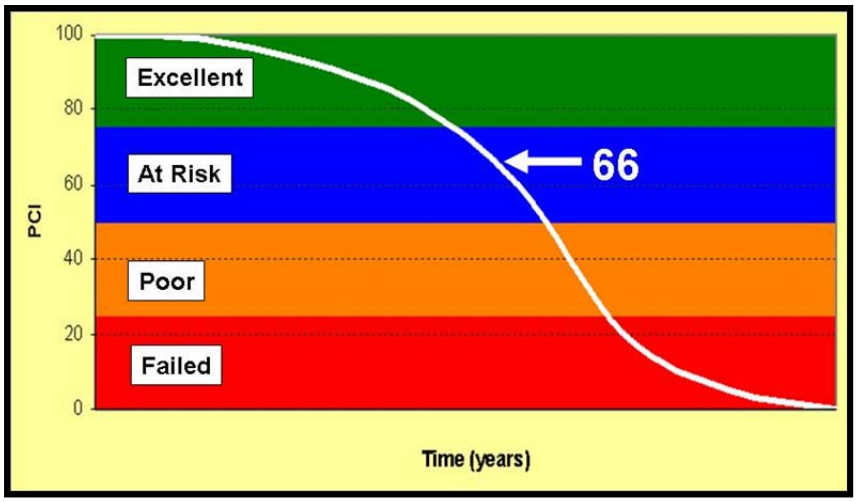
As can be seen, a majority of counties in the state have pavement conditions that are in either "At Risk" (shown in blue) or "Poor" (shown in red) condition. For 2010, this is 62 percent and 5 percent of the state's local streets and roads, respectively. Further, there has been an increase in the "blue" and "red" counties from 2008. Finally, despite their color, none of the "green" counties have an index rating above 77. In fact, most are in the low 70's, which indicates that they will turn "blue" in a few years.

Pavement deteriorates increasingly quickly the further outside the good/excellent range it falls. If repairs are delayed by just a few years, the costs of proper treatment increase significantly, as much as ten times.

An average pavement condition of 66 is not necessarily good news. While it is only a few points shy of the "good/excellent" category, the fact that it has slipped below good condition has significant implications for the future. Pavement deteriorates increasingly quickly the further outside the good/excellent range it falls (see Figure 3-4). If repairs are delayed by just a few years, the costs of proper treatment increase significantly, as much as ten times. The financial advantages of maintaining pavement in a good condition are many; they include saving taxpayers' dollars, reducing disruption to the traveling public, enhancing commercial mobility, speeding up public safety response, and benefiting the environment.

Therefore, an index rating of 66 should be viewed with caution. It indicates that our local streets and roads are poised on the edge of failure.

Figure 3-4. Generalized Pavement Life Cycle Curve



It makes better economic sense to preserve and maintain our roads in good condition than to let them deteriorate and then repair or rebuild them.

Finally, more than 2,700 local bridges need either rehabilitation or replacement at a total cost of more than $3.3 billion.

Performance Goals. It makes better economic sense to preserve and maintain our roads in good condition than to let them deteriorate and then repair or rebuild them. Consistent with that approach, the performance goals are based on achieving and maintaining roadway pavement conditions that meet industry standards for best management practices. These require improving all roads to an index within the good/excellent

range. At that point, the consistent use of preventative maintenance or preservation treatments (i.e., slurry seals, chip seals, thin overlays) will keep overall pavement conditions within an acceptable range. These treatments have the least impact on the public's mobility and commerce. Further, these treatment types are more environmentally friendly than rehabilitation and reconstruction, the next level of construction that would be required.

The importance of this approach is significant. As roadway pavement conditions deteriorate, the cost to repair them increases exponentially. For example, it costs 12 times less to maintain a pavement that meets standards for best management practices than to correct a pavement that is at the end of its service life. Even a modest resurfacing is four times costlier than performing maintenance on a pavement that has been kept in a condition that reflects best management practices. With counties and cities on fixed budgets, employing maintenance practices consistent with best management practices results in treating 4 to 12 times more road area than if they were in a failed condition. By bringing their streets and roads to meet these standards, cities and counties will be able to maintain them more cost-effectively. It is a goal that is not only optimal, but also necessary.

Funding Needs. Table 3-4 summarizes the total funding needs for the entire local streets and roads network over the next ten years at $102.9 billion.

Table 3-4. Summary of Ten-Year Funding Needs

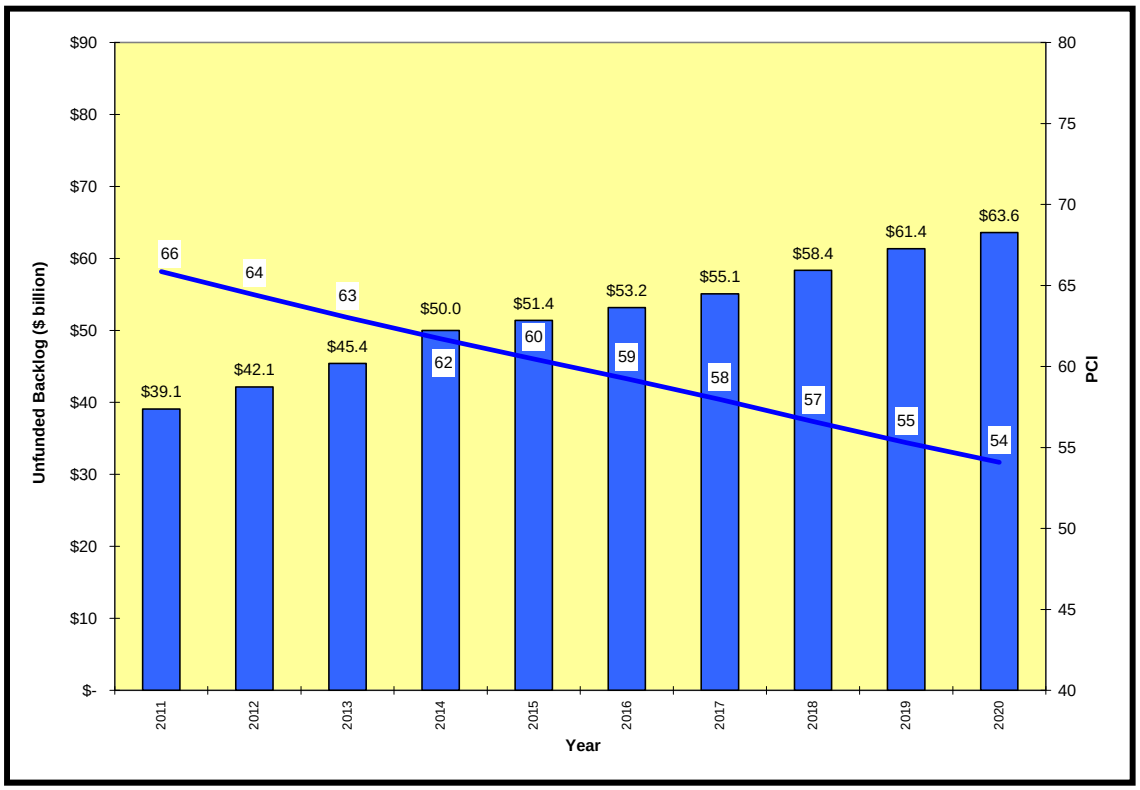
Transportation Asset	Needs (in $ billions)
Pavements	$ 70.5
Essential Components*	$ 29.1
Bridges	$ 3.3
Totals	**$ 102.9**

** Includes storm drains, curbs and gutters, sidewalks, curb ramps, traffic signals, streetlights, traffic signs, sound/retaining walls, and other elements. Does not include National Pollutant Discharge Elimination System requirements.*

The cost of complying with National Pollutant Discharge Elimination System (NPDES) regulations continues to be worrisome. The case studies show that these costs may range from 2 to 10 percent of an agency's transportation expenditures. However, these estimates do not include additional costs from other expenditures that are transportation-related, such as flood control or clean water programs. While the information provided was not sufficient to allow us to extrapolate statewide, one trend was clear: all agencies interviewed expected significant increases in NPDES in the future.

Consequences. At the existing annual funding level of $1.42 billion, the pavement condition is expected to deteriorate to an index rating of 54 by 2020. The unfunded backlog will almost double, from $39.1 billion to $63.6 billion. Figure 3-5 graphically illustrates these two trends.

Figure 3-5. Impacts of Existing Funding ($1.42 Billion A Year) On the Pavement Network



Although the pavement condition index and the unfunded backlog are common performance measures for cities and counties, there are other measures that may be used. One is the percentage of the pavement area in different condition categories. Table 3-5 illustrates the breakdown in pavement area for each funding scenario.

Table 3-5. Percent of Area by Condition Category in 2020

Condition Category	Current Breakdown (2010)	Breakdown in 2020 under Existing Budget ($1.42 billion/year)
PCI 70-100 (Good to Excellent)	57.0%	43.3%
PCI 50-69 (At Risk)	21.5%	22.3%
PCI 25-49 (Poor)	15.4%	12.0%
PCI 0-24 (Failed)	6.1%	22.4%
Total	**100%**	**100%**

A little more than 6 percent of pavements are currently in failed condition. However, at the existing funding level this will grow to more than

22 percent by 2020. In other words, nearly one in four local streets and roads will be considered "failed" in less than a decade under existing funding levels.

Nearly one in four local streets and roads will be considered "failed" in less than a decade under existing funding levels.

If sufficient funding were available, the benefits to the public of better maintenance would be immediate. Such benefits would include:

More cost-effective use of taxpayers' dollars;

- Safer and smoother operating transportation infrastructure that better supports alternative modes of transportation (such as public transit, bicycles, pedestrians, and services for the disabled);
- Better support of sustainable community policies;
- More environmentally-friendly maintenance treatments (seals instead of overlays and reconstruction);
- Less stop-gap maintenance, reducing delays and congestion;
- Reduced wear and tear on vehicles;
- Better traffic control with well-maintained traffic signals and streetlights;
- Cleaner water reaching aquifers, reservoirs, creeks, streams, lakes, and the ocean because of efficient and well-maintained storm drain systems; and
- Safer bridges that protect commuters, residents, and freight traffic.

Public Transit

Performance Goals. Local transit agencies goals are set by local governing boards. These types of goals vary by jurisdiction, but usually they involve carrying passengers safely, effectively, and efficiently to where they need to go.

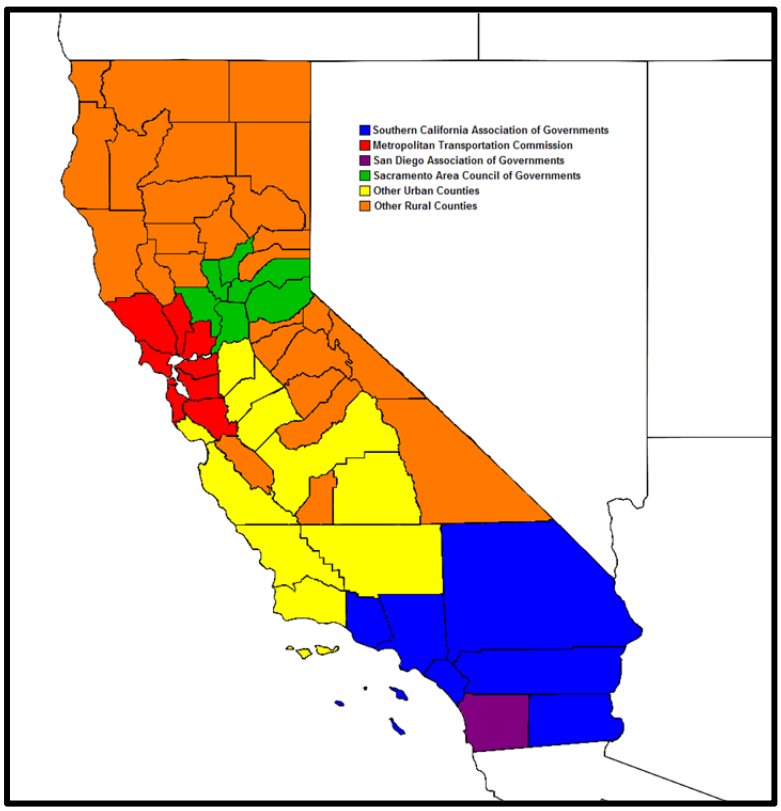
Transit operating goals are usually further refined according to locally preferred definitions of safety (for example, number of vehicle service miles provided between accidents); effectiveness (for example, cost per passenger mile); and efficiency (such as cost per vehicle service hour). For purposes of this chapter, assumptions were made about the funds needed to continue to operate at the same level of service as is currently provided. We have provided data allowing the reader to estimate funds needed to increase transit ridership statewide.

Transit capital goals are usually further refined to include measures of vehicle and facility asset preservation, such as state of good repair, or fleet service reliability. For buses, for example, assumptions are made about their useful life (generally 14 years per bus).

Funding Needs. The study includes 212 transit operators throughout California. The list is based on the operators reported in the 2008 *Transit Operators and Non-Transit Claimants Annual Report*, a compendium of transit agencies' financial reports to the State Controller's Office. The funding needs are identified for six groups (see Figure 3-6).

1) The Southern California region, covered by the Southern California Association of Governments (SCAG)
2) The San Francisco Bay Area region, covered by the Metropolitan Transportation Commission (MTC)
3) San Diego County, covered by the San Diego Association of Governments (SANDAG)
4) The Sacramento region, covered by the Sacramento Area Council of Governments (SACOG)
5) Other urban counties: those operators based in a county outside the four major MPOs with a population greater than 250,000
6) Other rural county operators: those operators based in a county outside the four major MPOs with a population less than 250,000

Figure 3-6. Six Regional Divisions for the Study



The total ten-year preservation needs for transit are estimated at $142.357 billion. This includes $32.675 billion designated for rehabilitation and $109.682 billion designated for maintenance.

Consequences. Transit operators across California have been struggling to balance their budgets in recent years as a result of ongoing increases in operating costs, increasing capital reinvestment backlogs, and the recession-induced reductions in funding at the state, regional, and local levels. In addition, the industry must bear the high cost of converting vehicle fleets to clean diesel, biofuels or CNG to meet new clean air mandates. Finally, although costs are rising and revenues are declining, there is a growing demand to provide more transit service due to our aging population, lower median incomes, and California's new greenhouse gas reduction goals in AB 32 and SB 375. Operators have been forced to address these issues through a combination of measures that include service cuts, fare increases, staff layoffs, and deferred capital rehabilitations and replacements. These responses have forced reductions in service availability and service quality for a broad segment of California's population that depends on public transportation for access to work, medical services, and school, as well as for generally mobility.

Intercity Rail

Current Condition of the System. Caltrans' fleet of rail passenger cars and locomotives are maintained by Amtrak under a contract between the two agencies, in accordance with manufacturer-recommended practices and federal regulations. Heavy overhaul and major repairs are performed by independent contractors under contract with Caltrans. Heavy overhaul schedules are determined by equipment manufacturers, and they are based on the maintenance needs and anticipated life cycles of the major system components. Compliance with preventive maintenance and heavy overhaul schedules and requirements is critical to the safe and reliable operation of the fleet of vehicles. In some instances, Federal Railroad Administration regulations require it.

The Oakland Maintenance Facility is operated and maintained by Amtrak, with select work for facility improvements, modifications, and major repairs performed by contractors. An additional need for a Southern California maintenance facility has been identified but costs for that project are not yet available.

The intercity rail fleet is currently in good condition. However, recent changes in federal regulations, occasional damage from accidents, and other unforeseen costs may place the fleet in non-compliance with requirements. Some cars or locomotives also may be inoperable due to damage.

Performance Goals. Caltrans' goal is to continue to maintain and operate the fleet of rail equipment in compliance with all requirements, recommended practices, and original equipment manufacturer standards. The goal is to keep the fleet safe, reliable, cost-effective, and consistent with Caltrans' standards for service quality. Performing all maintenance,

heavy overhaul, and repairs in accordance with these requirements will preserve Caltrans' rail equipment assets.

Caltrans also oversees Amtrak's operation and maintenance of the Oakland Maintenance Facility to ensure that its investment in this facility is preserved, and that the facility continues to be a safe, efficient, and effective center for the maintenance of the state's fleet of railcars and locomotives.

Funding Needs. The current average annual cost to conduct heavy overhaul of the state's existing fleet of cars and locomotives varies between $12 million and $15 million. The annual cost is variable due to the periodic nature of heavy overhaul requirements. However, as the fleet ages and a greater number of components reach the end of their projected useful life, heavy overhaul costs will begin to escalate. An annual budget of no less than $15 million ultimately will be required to ensure that the existing fleet of cars and locomotives are adequately maintained and overhauled appropriately. This cost also will increase if additional rolling stock is acquired.

Changes in federal requirements for a number of safety-related systems also will require funding in order for the fleet of cars to remain in compliance with federal requirements. These systems include passenger inter-communication and information systems, emergency exit pathway markings and signage, and emergency lighting. The one-time cost of bringing the fleet of 88 cars into compliance with these new regulations is estimated to be $9 million.

The primary unmet needs for the Oakland Maintenance Facility are for adding security improvements to increase employee safety, preventing unauthorized entry to the facility to protect against theft and vandalism, and providing a camera system that monitors the facility and records all activities with forensic quality to aid in the investigation of incidents and accidents. The estimated one-time cost of these security improvements is $6 million, with an estimated annual operating cost of about $500,000 to establish and operate a security operations center with video archiving, trespasser and left-object detection, and incident response.

The only unknown and potentially costly change in federal law that may affect Caltrans' fleet of locomotives is the retrofitting of existing locomotives to meet future emissions requirements. This isn't yet required, but federal regulations may change in the future. If they do, Caltrans will have to secure funding to bring existing locomotives into compliance with air quality standards, or replace the non-compliant locomotives with new equipment that meets more stringent standards.

Consequences. The primary consequence of not meeting minimal funding needs is a fleet of rail cars and locomotives that is unsafe, noncompliant with federal requirements, unreliable, and inoperable. The State is on the

verge of purchasing new rail cars and is leading the effort on the national level. The cost per car to maintain the fleet will be reduced if a) there are more cars and b) they are new. As this fleet of rail cars and locomotives is used to operate trains on California's three state-funded routes, this would result in the eventual suspension of trains, the diversion of passengers to other travel modes, and dramatically increased costs to Caltrans to locate and fund replacement equipment.

The benefit of having the funding available is the continuation of Caltrans' successful intercity rail service, and using rail equipment and facilities that are safe, compliant, cost-effective, and reliable.

Freight Rail

Current Condition of the System. The growing importance of intermodal freight in California railroad operations is based on consumer demand, and on the fact that California is the primary gateway for containerized products coming in from the rapidly expanding Pacific Rim economies. The two Class I railroads are facing increased levels of traffic along their corridors, and they are approaching maximum capacity. In some cases they are forcing shippers to move goods by truck, which exacerbates highway congestion. The increase in intermodal traffic at the major California ports is making heavy demands on existing railroad capacity. As noted by many of the short line railroads, a crucial need also exists for infrastructure upgrades, particularly to handle the heavier cars that are used by Class 1 railroads. As trains get bigger and they operate more frequently, local communities are increasingly expressing concerns over noise, air quality, traffic delays at crossings, and other community impacts.

These constraints have impacts beyond the freight rail system itself. Effects of constrained rail capacity include higher costs to consumers, delays caused by reduced velocity and throughput, increased fuel consumption, increased vehicle emissions, negative community and environmental justice impacts, reduced customer service levels, reduced competitiveness between rail and truck, reduced competitiveness of California ports served by rail, reduced rail availability, poor short line railroad interchanges, and reduced overall rail network performance. In the spring of 2007, the Surface Transportation Board conducted a hearing entitled, "Rail Capacity and Infrastructure Requirements." In his statement, David Ganovski from the State of Maryland stressed that freight rail transportation is not keeping pace with the demands of the economy, and the freight system overall is in the early stages of a capacity crisis. Even with moderate economic growth of 3 percent annually, the United States will see a doubling of freight movement by 2035. The Association of American Railroads estimates that the Class I railroads will be able to fund only 70 percent of the $135 billion they need to meet growing demands in the freight rail network over the next 30 years. For the remaining 30 percent, states will need to collaborate with the railroads on public–private partnerships and support federal

Maintenance of the freight rail system at its current level, or even with minor improvements, will still result in more freight being carried by truck. One freight train can carry the load of approximately 280 trucks.

investment tax credits where the capacity improvements involved are determined to be in the public interest.

Performance Goals. To maintain the state's economic health, and to continue its substantial contributions to economies throughout the nation, California's rail network system must be preserved to the maximum extent feasible. Maintenance of the freight rail system at its current level, or even with minor improvements, will still result in more freight being carried by truck. One freight train can carry the load of approximately 280 trucks. If goods are not shipped by rail, congestion on the state highway system will certainly increase.

Our performance goal is to facilitate freight rail operations in ways that promote economic growth, support our economic competiveness, encourage job creation, enhance capacity, and increase mobility while also enhancing public safety and security, and addressing the environmental challenges of moving goods along the state's highways, railways, and ports.

Funding Needs. In order to maintain and strengthen the position and contributions that the freight rail system makes to California and the nation, the state must remain an active partner with the private sector and other government entities in the planning, programming, and funding of major freight rail projects.

Rail transportation is extremely capital-intensive, requiring high levels of spending on infrastructure such as track, bridges, and signals; locomotives, freight cars, and maintenance equipment; and information technology. The privately-owned Class I railroads have aggressive rail/bridge system preservation programs that are developed at their multi-state system level. They continually rehabilitate tracks and other facilities in a capital program that rivals that of a state highway system. Maintenance and improvements are built into the business plan, and costs are accordingly incorporated into the railroads' shipping rates.

Caltrans has been challenged in terms of being able to gather information on the freight rail system, particularly for the Class I railroads. The department also has an active interest in helping to preserve the short line routes that feed the Class I system. Two major upcoming efforts are expected to provide an opportunity to obtain and analyze this critical data. The Office of System and Freight Planning at the state's Division of Transportation Planning is updating the State's Goods Movement Action Plan (GMAP) under the working title of the "California Freight Mobility Plan." Development of the Freight Mobility Plan will generally overlap in time with the State Rail Plan, recently under contract with a consultant team. Oversight for the California Freight Mobility Plan will be provided by staff in the Freight Planning Branch, who also will have responsibility for the Freight Element in the State Rail Plan, thus ensuring consistency in terms of policy development and technical accuracy. The Freight Mobility Plan and the Rail Plan's Freight Element will both involve

substantial stakeholder outreach, analyses of key goods movement issues and trends, a focus on significant issues and priority freight corridors, and development of a freight mobility and infrastructure action plan.

Table 3-6 below summarizes the total funding needs for Class I and short line railroads:

Table 3-6. Summary of Ten-Year Funding Needs for System Preservation

Transportation Asset	Needs ($ millions)
Class I Railroads (Burlington Northern Santa Fe & Union Pacific)[11]	$ To be determined
Short Line Railroad	$ 64.420
Total	**$ 64.420**

Stable and long-term funding is critical to the preservation, maintenance, and expansion of California's freight rail system. The state's investment in rail improvements not only must enhance the interstate and intrastate movement of freight, it also must demonstrate a significant public benefit. In past projects, the public benefit has been demonstrated by reductions in air emissions, improvements in air quality, a reduction in traffic congestion, improvements in public safety, and by addressing other local community concerns.

Consequences. Without adequate investments to expand California's rail lines performance will deteriorate, eroding service to the public, dampening the state's economic vitality, and dimming job prospects for a growing workforce. As freight rail capacity becomes more constrained, the potential increases for conflicts with passenger rail on shared lines. The landside infrastructure in California and the rest of the nation is struggling to keep up with rising container and bulk freight volumes. Failing to address freight rail system needs and related infrastructure will also reduce the effectiveness of improvements made to other modes of transport. Making the most of intermodal transport improves overall fuel efficiency, and it reduces congestion on roads and highways. The result is safer roads and highways, longer-lasting roads and highways, and less air pollution.

Seaports

Current Condition of the System. The 12 deep-water ports in California range from among the most modern facilities in the world to ports needing extensive renovation and upgrading in order to maintain basic operations. Each port has unique physical features, facility conditions, financial standing, business climate, and governance structure. Regardless of port

[11] We have not received project class from Union Pacific or Burlington Northern Santa Fe. Our list was based on the Goods Movement Action Plan (2007) and the California State Rail Plan (2007).

size or condition, each port constantly works to keep channels and berths clear of silt and sand, replace degraded structures, renovate terminals, address ever more stringent environmental requirements, and take other basic actions to preserve their operational capability.

Several ports are deepening their channels to accommodate larger ships and preserve their competitiveness. The shipping industry trend is toward larger ships, which require deeper channels. To remain viable, ports must respond to this trend or find themselves in an ever-shrinking niche market that caters to smaller ships. Every port is continually improving its infrastructure and facilities, and in some cases battling the steady decay of aging infrastructure and siltation. Ports function in a fiercely competitive business environment that will soon become more intense due to the expansion of the Panama Canal. In addition, California ports, which receive very little state assistance, must compete with nations that provide massive support to their ports, as well as with other states around the nation that also heavily subsidize their capital and operating costs. California's ports are models of very successful public-private partnerships (P3s). California ports serve largely as "landlords," managing and improving the state tidelands upon which they operate. They do this primarily with funds generated through partnerships, agreements, and true fee-for-service agreements with private entities that operate at port facilities. Although this report does not provide a port-by-port assessment of conditions, attachments include individual assessments at each of California's public deep-water ports.

California ports, which receive very little state assistance, must compete with nations that provide massive support to their ports, as well as with other states around the nation that also heavily subsidize their capital and operating costs.

Performance Goals. The state's goal is to retain each of California's 12 deep-water ports as competitive goods movement enterprises, so that they remain economically viable as freight handling facilities that support California's economy while also reducing impacts to the environment and local communities. Emphasis must be placed on ensuring the structural integrity of the entire port system and the viability of each of California's ports. Provisions of the California Coastal Act make it very unlikely that any new deep-water port will be constructed in California. We cannot afford to allow any existing port to deteriorate or become obsolete, thereby putting at risk state and national assets that cannot be replaced.

We cannot afford to allow any existing port to deteriorate or become obsolete, thereby putting at risk state and national assets that cannot be replaced.

Funding Needs and Shortfall. There are numerous funding needs for each port, more needs than can be met by existing revenue streams. Each port prioritizes its needs and resources, allocating expenditures to programs and projects that are both mandated by regulations and necessary to stay competitive. There is a limit to how much a port can charge shippers before those shippers move their business to a more competitive port. In addition to competing with nations and states that provide direct funding assistance to their ports, California ports are implementing California-only programs that are leading the nation, and indeed the world, toward environmentally-friendly port operations. Estimates of the costs to implement California-only environmental regulations and programs are as high as $5 billion.

California Ports have traditionally sought to minimize costs on their regional transportation partners because they have been able to finance most of their needs through user fees and self-help financing. Some ports are able to continue to self-finance projects within port properties. However, many California ports now need additional funding assistance because of the recent economic downturn, increased environmental regulations, and competition from ports in states and countries that contribute funding to make their ports competitive. Unfortunately, due to the ports' self-reliance in the past, some port projects have not been included in regional transportation planning efforts. As a consequence, that places them at a disadvantage when competing for necessary funding.

Projects that improve ship access to ports via sufficiently deep water, and ensure sufficiently large berthing and docking facilities in good repair, are generally not funded with state dollars. Adequate funding for necessary dredging projects, for example, remains in question. Improving air quality is one of the mandated, and expensive, requirements that must be addressed. California ports are constructing facilities to provide shore power to vessels at berth in order to reduce emissions associated with auxiliary engines, which currently must be run while a ship is in port. Full funding for this important and expensive undertaking is likewise not yet identified. Proposition 1B Air Quality Mitigation funds, approved by California voters, are not sufficient to fund state mandates and port voluntary measures (e.g., Ports of Los Angeles/Long Beach Clean Air Action Plan, and the Port of Oakland Maritime Air Quality Improvement Plan).

All of California's ports recognize the importance of ensuring adequate maintenance and significant improvements to the state's infrastructure system "outside the port gates." Important highway improvement projects, local street and road improvements, and rail infrastructure projects are critical to ensuring the efficient and predictable movement of goods through the broader transportation system for goods leaving from, or arriving to, California's ports. The total ten-year funding needs for preservation projects at California's 12 ports are estimated at $4.6 billion.

Consequences. Without adequate investments to maintain and expand California's ports, the many thousands of jobs associated with the movement of goods to, from, and through California will be lost to other states or countries. Industries associated with the ports will diminish or be eliminated, and California will lose real potential for job growth and significant economic improvement.

Airports

Current Condition of the System. Of the 249 public use airports in the state, 30 are classified as having commercial service operations (regularly scheduled passenger flights). The 219 general aviation airports may be publically owned and maintained, and they may be partially funded with

federal and/or state grant support. With local funding sources challenged and airports and airport staff being a lower priority in many city and county budgets, the vast majority of these airports are distressed in one or more important areas. Routine airport maintenance is more often being deferred, and these costs are going up as airport infrastructure deteriorates at a faster rate. Common airport maintenance deficiencies noted system-wide include runways not receiving timely maintenance, and faded or worn runway and taxiway striping, signage and lighting. Other airports may lack vital weather reporting equipment or landing approach aids to accommodate planned aircraft operations. Additionally, some of these airports have substandard runway safety areas that must be updated by 2015 to meet new Federal Aviation Administration (FAA) standards. Other airports have outdated airport layout plans. These documents are required to determine which federal standards apply, and how to protect the airport from incompatible land uses.

Currently, several commercial airports have major capital projects underway, including Los Angeles International, John Wayne-Orange County, San Diego, Sacramento, Santa Barbara, and Long Beach. Many of the projects combine system preservation and expansion by replacing aging facilities while also providing for increased passenger and cargo activity in the coming decade. Projects range from safety measures such as increasing the distance between active runway operations and areas where passengers are in transit or public roadways exist, to new terminal space increasing airline gate capacity and passenger holding areas. Projects also are designed to speed passengers through airport facilities and accommodate the space requirements of increased security procedures, such as baggage screening equipment.

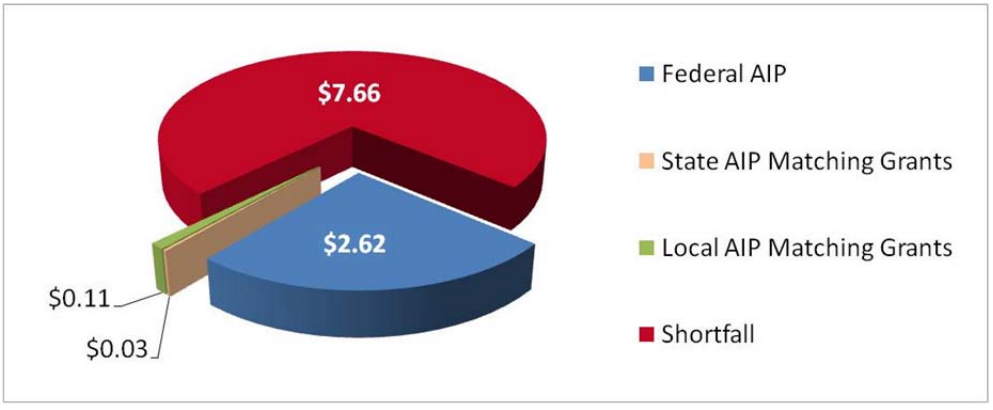
Performance Goals. The Division of Aeronautics classifies general aviation airports according to the type of based aircraft and operations planned for that facility. This approach is similar to roads being classified according to their designed use. The FAA sets infrastructure standards for all airports, and the state uses these guidelines for permitting, inspection, and design purposes. Based on FAA standards for airport design and safety, the Division of Aeronautics recommends priority improvements that would keep airports within these standards before looking to expansion projects. The main preservation projects (runway maintenance, navigation aids, and airport layout plans) are reflected in Table 3-7.

Table 3-7. General and Commercial Aviation Performance Goals

Improvement Area	Timeframe/Performance
Runway Length	Meet standards by 2015
Runway Width	Meet standards by 2015
Pavement Condition	Maintain standards before full rehabilitation is required
Runway Safety Area	Upgrade all runway safety areas to 'satisfactory' status before the FAA's deadline to meet this requirement in 2015
Airport Layout Plans	All updated at least once every five (5) years, and all made current by 2015
Visual Aids	Upgraded for based aircraft and forecast use of airport
Weather Services	Upgraded for based aircraft at airport
Instrument Approach	Upgraded for based aircraft and forecast use of airport

Funding Needs and Shortfall. Federal and state aviation system preservation projects in California total about $10.42 billion over the next ten years, as shown in Figure 3-7. Funding over this period is appropriated annually from federal and state grant programs. Based on the FAA's Airport Improvement Program (AIP) past performance and estimated state and local participation, $2.76 billion (combined from FAA AIP, State AIP matching grants, and local AIP matching grants) could be available to support these projects. Therefore the funding shortfall is estimated at $7.66 billion.

Figure 3-7. Ten-Year Aviation Project Funding Needs and Shortfall Summary ($ billions)



General aviation airports in California generally rely on three funding programs for preservation, maintenance, and non-expansion development projects: FAA grants, state grants and loans, and various local funding mechanisms derived from county and city budgets. All state grant programs

for airports are funded from the Aeronautics Account in the State Transportation Fund. The Aeronautics Account is funded from excise tax revenues that are collected on general aviation fuel at the rate of two cents per gallon for jet fuel (non-commercial use only) and 18 cents per gallon for aviation gasoline. Because revenue is dependent on total fuel sales volume,

funding varies annually. Of all aviation-related tax revenue, 60 percent is distributed to local agencies and 38 percent is deposited in the state's General Fund. The remaining 2 percent is deposited in the State Aeronautics Account. Aeronautics' administrative costs are paid out of the Aeronautics Account, as was codified in 1965. The balance remaining in the account is made available to general aviation airports. This sum has varied from about $2 million to $4 million annually. The exception was in fiscal year 2009-10, when $4 million of revenue was transferred into the state's General Fund by the Legislature.

Commercial service airports have a different funding mechanism for capital projects on airport property. The Passenger Facility Charge (PFC) program allows the collection of PFC fees up to $4.50 for every passenger that boards a plane at commercial airports controlled by public agencies. Airport projects can be funded by PFC fees to fund FAA-approved projects that enhance safety, security, or capacity; reduce noise; or increase air carrier competition. Commercial service airports typically issue bonds or notes with PFCs that serve as the revenue source to retire the debt financing. Of the $10.42 billion in airport capital improvement plan projects, $2.91 billion is attributable to the 30 commercial service airports and their need to accommodate the 155 million passengers who use California commercial airports annually, more passengers than in any other single state.

Consequences. In 2003, the Division of Aeronautics published an economic study documenting that aviation contributed approximately 9 percent of the state's gross domestic product and employment base. Given that airports are economic engines for local communities, there is considerable justification to curb the deterioration of the California aviation system. The following are major consequences of funding shortfalls and the lack of reinvestment of aviation user taxes back into aviation:

- Greater exposure to flight safety hazards when airports are not maintained on schedule
- More frequent regulatory compliance safety violations
- Increased cost of maintenance when routine activities are deferred
- Lost economic opportunities to more capable out-of-state airports
- Compromised connectivity for cities and counties that rely on commercial, military, and general aviation for access to a larger market base
- Declines in tourism for areas outside major metropolitan centers

- Reduced ability to provide reliable shipment of fresh food imports and exports, which are heavily dependent on a well-maintained multiple airport system
- Less responsive emergency medical, fire, and police operations, particularly in remote portions of the state
- Less efficient just-in-time/overnight deliveries

Land Ports

Funding Needs. The total funding needs for the projects outlined below is estimated at $935 million.

Otay Mesa Land Port of Entry. This Port of Entry (POE) is one of the ten busiest in the country, and it is the busiest commercial border crossing on the California/Baja California border. In 2009, Otay Mesa handled inspections of 4,140,871 passenger vehicles, 684,425 trucks, 114 buses, and 1,979,982 pedestrians in the northbound direction.

In April 2009, the Department of Homeland Security was awarded about $21.3 million of American Recovery and Reinvestment Act funds for some initial Otay Mesa POE reconfiguration and modernization projects. These funds covered the cost of acquiring land and part of the design for the project. The reconfiguration and modernization project would make improvements to both commercial and non-commercial portions of the existing port, and it would include the relocation of the hazardous waste truck crossing inspection facility.

Reconfiguration upgrades for the Otay Mesa POE are expected to cost about $60 million. Additional funds would be needed to expand commercial and passenger inspection facilities, which is proposed as part of this overall project.

San Ysidro Land Port of Entry. The U.S. General Services Administration (GSA) is leading a reconfiguration and expansion project in three phases: Phase 1 includes the replacement of the east-west pedestrian bridge over Interstate 5 and northbound capacity improvements. Phase 2 will include the replacement of northbound buildings. Phase 3 will include construction of southbound roadways and facilities as well as renovations to facilities at the Virginia Avenue gate.

The total cost for this project is about $577 million. It is estimated that the cost of facility replacements and renovations would range between $290 million and $380 million. There is a funding gap of about $285 million to complete the entire project, which is expected to be completed in 2016.

Tecate Land Port of Entry. Two freight rail projects (both in the conceptual planning stage) to modernize the Desert Line have been proposed for in this area for international and interstate movements of goods.

Calexico Land Port of Entry. GSA has proposed an improvement project that includes the creation of new pedestrian and privately-owned vehicle inspection facilities at this Port of Entry. There will be new administration space, and a new headhouse.

The project will be constructed in two phases. Phase 1 will include construction of a headhouse, and site work necessary to accommodate those facilities on the sloping site. Phase 2 will include additional site work, a pedestrian processing facility, and administrative offices.

The total estimated project cost nor non-capacity upgrades is $160,787,000. A total of $23,787,000 has been spent on planning and design, which leaves about $137,000,000 in a funding gap.

Calexico East Land Port of Entry. There are no planned improvements at this Port of Entry.

Andrade Land Port of Entry. There are no planned improvements at this Port of Entry.

C. SYSTEM MANAGEMENT

The existing transportation system is the result of decades of major investments. Therefore, it is critical to make the best use of this valuable infrastructure. Low-cost investments in existing transportation facilities often can be made in the near term to help reduce the need for more costly investments later on. For example, signal prioritization can increase the speed of public transit and emergency vehicles. Meanwhile, real-time travel information can help people make more informed travel choices. Modern technology makes it possible for transportation operators to control the impacts of roadway incidents and special events, and to advise travelers of alternative routes. Technology also can streamline how transit riders pay their fares, through the use of universal smart cards, for example. These types of investments and innovations are designed to help operators effectively manage the transportation system. The CTC recognizes the importance of a widely applied system management approach. This is demonstrated by the CTC's requirement that all Corridor Mobility Improvement Account projects that are funded under Proposition 1B must have a companion Corridor System Management Plan (CSMP). A CSMP supports partnership-based and integrated corridor management of various travel modes (transit, cars, trucks, bicycles) and infrastructure (rail tracks, roads, highways, information system, bike routes). The goal of these management plans is to ensure that increased mobility is promoted efficiently and effectively. A CSMP joins facility operations and transportation service provisions with capital projects to form a coordinated system management strategy that focuses on high demand travel corridors. Forty-five CSMPs were initially required by the CTC, and they are beginning to be used to focus operational and capital resources productively.

Low-cost investments in existing transportation facilities often can be made in the near term to help reduce the need for more costly investments later on.

System management initiatives identified for California will cost about $13.5 billion[12] between 2011 and 2020, or about $1.4 billion annually. However, there are limited state resources dedicated to system management. As a result, state system management programs must often compete with other programs or projects for funding. When significant funding does exist, it is usually at a regional level, which results in a fragmentation of services across regions, and service gaps in the more rural areas.

[12] Calculated by combining the System Management projects reported by the MPOs and RTPAs ($9.7 billion) with costs from the SHOPP Mobility Program ($3.8 billion).

Targeted Strategies for Investments in System Management

The discussion below provides an overview and illustrative examples of the many programs and strategies being employed in California to effectively manage the state's vast transportation system:

Safety and Management: There are significant investments planned over the next decade in Safety and Management strategies that aim to help drivers and passengers get to their destinations safely and efficiently. Common safety and management projects enhance freeways and local roads with technology that monitors and adjusts the flow of traffic. Such technologies include closed-circuit cameras and ramp meters. Other projects help locate accidents, while providing drivers with information on traffic and road conditions. For example, a number of agencies fund Freeway Service Patrol and Call Box programs. The goal of these programs is to help clear roadways of hazards.

Spotlight Program

The MTC's Freeway Performance Initiative (FPI) in the San Francisco Bay Area is one program that deploys current technology to better manage congestion on the freeway system. The program establishes a technological foundation for managing congestion, and subsequent innovations can build on this foundation. Through a series of corridor studies and a detailed inventory of intelligent transportation system (ITS) installations along all of the Bay Area's freeway corridors, the MTC has developed a comprehensive picture of how effectively the region's highway system is managed. The MTC also has identified gaps that need to be filled.

Intelligent Transportation Systems (ITS): ITS elements have been developed to assist managers, planners, and engineers to accurately estimate road performance, identify locations where improvements are needed, and evaluate benefits of investments. ITS elements vary in scope and include projects such as ramp-metering, changeable message signs, freeway service polls, loop systems, etc. These projects are implemented in an effort to decrease travel delay times, improve traffic congestion, improve the environment, and improve driver safety. In addition to the ITS projects developed to decrease travel delays, ITS technologies are also implemented to assist emergency vehicles and mass transit operators. Prioritizing these public services is done to improve emergency vehicle response times and maintain public transit schedules by reducing vehicle delays. Inadequate network capacity and security concerns are constraining Intelligent Transportation Systems statewide, but particularly outside the largest urbanized areas where networks and funding are less robust. These deficiencies mean that recent significant statewide capital investments in monitoring are substantially underutilized and traveler information suffers.

Spotlight Program

The Proposition 1B Traffic Light Synchronization Program (TLSP) is a statewide competitive grant developed to fund traffic light synchronization projects and improvements to reduce congestion, improve motorist safety, promote a fluid transportation network, and reduce environmental impacts. The TLSP program has funded multiple projects throughout the State which have resulted in improving traffic conditions and aiding in the development of a more sustainable and coordinated transportation system. Unfortunately, the finite nature of this bond program handicaps our ability to have a comprehensive ITS monitoring system in all parts of the state.

Managed Lanes: Managed Lanes are a traffic operations practice that addresses highway traffic conditions by controlling highway traffic movement. High-Occupancy Vehicle (HOV) lanes, commonly known as carpool or diamond lanes, are a lane management strategy to promote and encourage ridesharing – thereby alleviating congestion and maximizing the people-carrying capacity of California highways. Two common approaches to managed lanes are restricting lane use based on vehicle eligibility, and limiting ingress/egress to control access to the highway. Vehicle eligibility can be based on occupancy or vehicle type. Approximately 40 percent of the nation's total Managed Lane network is located in California, and within the state the network is predominantly located in large urbanized areas.

Spotlight Program

The addition of managed lanes to the existing capacity of the freeway system is an initiative classified under System Expansion. But many of the projects included in MTC's Express Lane program promote System Management because they involve converting existing lanes to express lanes. In addition to improving congestion in areas where express lanes are implemented, the Bay Area Express Lane Network is designed to accelerate completion of the region's carpool lanes and improve public transit systems. One of the biggest benefits of express lanes is that they generate revenues. These revenues can be used to underwrite bonds and fund new projects.

Transportation Demand Management (TDM): TDM projects aim to increase the appeal of more efficient routes or modes of transportation. Many TDM projects involve implementing and operating systems that provide travelers with real-time information for planning trips by telephone or the Web. Other programs are designed to give people incentives to use public transit, sometimes focusing on specific groups of people and other times promoting public transit for everyone when air quality is poor. Programs that organize or subsidize alternative travel options, such as ridesharing, vanpooling, or telecommuting, also fall in this category. While important 511 traveler information and rideshare programs exist on a regional basis, the lack of funding for a statewide system makes for a patchwork of programs that limits information on traffic, transit and ridesharing for those traveling from one region to another. In addition,

many smaller or rural regions have no 511 traveler information system or rideshare program at all, or it ends at county lines. The lack of a single, coordinated source of information affects not only residents traveling ouside of their home region but also frustrates travelers from out of state who make such an important contribution to our economy. There also is lack of dedicated statewide funding for Rideshare Programs hampering cost effective solutions for reducing the demand on the system and encouraging alternate modes of transportation.

Spotlight Program

SACOG's 511 regional travel information program is a prime example of a TDM strategy. Travelers may call the 511 telephone number or visit the website to obtain real-time traffic updates, transit, and intercity rail information, and direct feeds from traffic cameras and changeable message signs. SACOG's 511 website also has tools for cyclists, including those for planning a bike trip or making your business more bicycle-friendly. SACOG has contracted with outside counties to provide traveler information; this multi-regional database is a first step towards a statewide network of traveler information that is currently needed.

Smart Fare and Toll Media: Another system management strategy improves the collection of fees from people who use the transportation system. Initiatives include installing and operating vehicle transponder infrastructure for toll facilities. Other initiatives provide for universal transit fare media that promote a uniform method of payment across multiple providers or forms of transportation. To the extent that electronic tolling technology can be disseminated throughout the state, it will simplify the ability to access tolling as a new funding source for all regions.

Spotlight Program

Los Angeles County's Transit Access Pass (TAP) is one such smart fare media project. TAP allows people who use the area's transit networks to load a single card with passes and electronic cash. Participating transit systems charge card holders the appropriate fare automatically, reducing the need for spare change and paper transfers.

Changeable Message Signs (CMS): Changeable Message Signs (CMS) are programmable traffic control devices that can usually display any combination of characters to provide traffic and safety information messages to motorists. These signs provide motorists with real-time information advising them of traffic conditions. These signs can either be permanently installed above or on the side of the roadway, or portable devices attached to a trailer or mounted directly on a truck and driven to a desired location. Installing CMS improve traffic conditions by increasing traveler safety and awareness and decreasing congestion.

Weigh in Motion (WIM)/Weigh Stations: WIM are devices designed to capture and record axle weights and gross vehicle weights as vehicles drive over a measurement site. Unlike static weigh stations, WIM systems are

capable of measuring truck weights at normal traffic speeds and do not require the vehicle to stop or drive at low speed, making them much more efficient measuring tools. Weigh Stations examine additional elements of the vehicle's use beyond weight. At Weigh Stations freight paperwork, vehicle paperwork and logbooks are reviewed to ensure that fuel taxes have been paid and that truck drivers are obeying their hours of service. Additionally the truck and driver may be subject to DOT inspection.

There is a wide range of rehabilitation needs for weigh stations and WIMs. Deferred maintenance due to funding shortfalls have caused many elements of the transportation system to fall into poor condition. Weigh Stations and WIM facilities support the State's highway system and contribute to increased traveler safety and pavement life. Currently the SHOPP constrained program identifies 22 rehabilitation projects. By leaving these needs unfulfilled, there will be a substantial negative impact on the state's highway system in the degradation of all facilities and overall mobility. Specifically, the failure to maintain and support these facilities will impact pavement life, affect facility integrity as well as the sensitive equipment located at each facility, and increase safety risks to the general public.

Top System Management Strategies Planned for California

Of all the statewide system management projects proposed, about $11.5 billion of them focus on safety and traffic management. The next largest investments are in managed lanes projects and other ITS projects, which account for $0.7 billion and $0.6 billion respectively. Agencies also identified $0.3 billion of system management costs for expansion projects. TDM and smart fare and toll media projects account for about $0.2 billion in investments (see Figure 3-8 and Table 3-8).

Figure 3-8. System Management Investments by Category

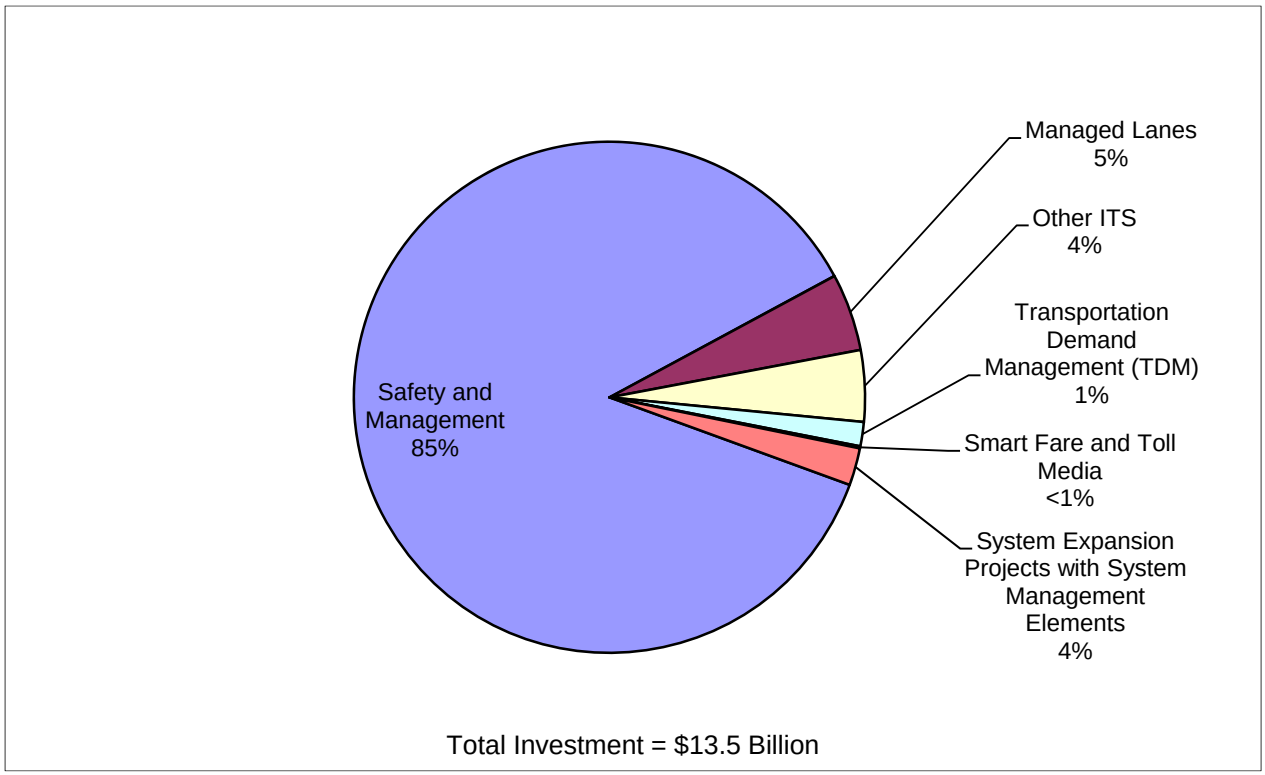


Table 3-8. Summary of System Management Investments by Category

	Total (in $ Billions)
Overall System Management	$ 13.5
Safety and Management	$ 11.5
Managed Lanes	$ 0.7
Other ITS	$ 0.6
Transportation Demand Management (TDM)	$ 0.2
Smart Fare and Toll Media	<$0.1
System Expansion Projects with System Management Elements	$ 0.5

The amounts spent on system management efforts vary from region to region.

D. SYSTEM EXPANSION

In this section of the report, survey results of transportation system expansion needs from 2011 to 2020 are summarized. The discussion of each system includes the source of information and the total estimated delivery cost of projects. The survey identified more than $183 billion in high-priority projects that are needed to meet system expansion needs.

Regional transportation agencies identified $79 billion in projects that would expand the state highway system's capacity over the next decade.

State Highway Projects

Regional transportation agencies identified $79 billion[13] in projects that would expand the state highway system's capacity over the next decade. (See Figures 3-9, 3-10, and 3-11)

General Purpose Lanes Projects

Most highway expansion projects identified over the next decade would add "general purpose" or "mixed flow" lanes. These lanes would be open to all motor vehicles including passenger vehicles, trucks, and buses. Regional agencies identified $40.7 billion in projects that would add general purpose lanes. More than 600 individual projects were identified, including the expansion of both Interstate highways and state highways.

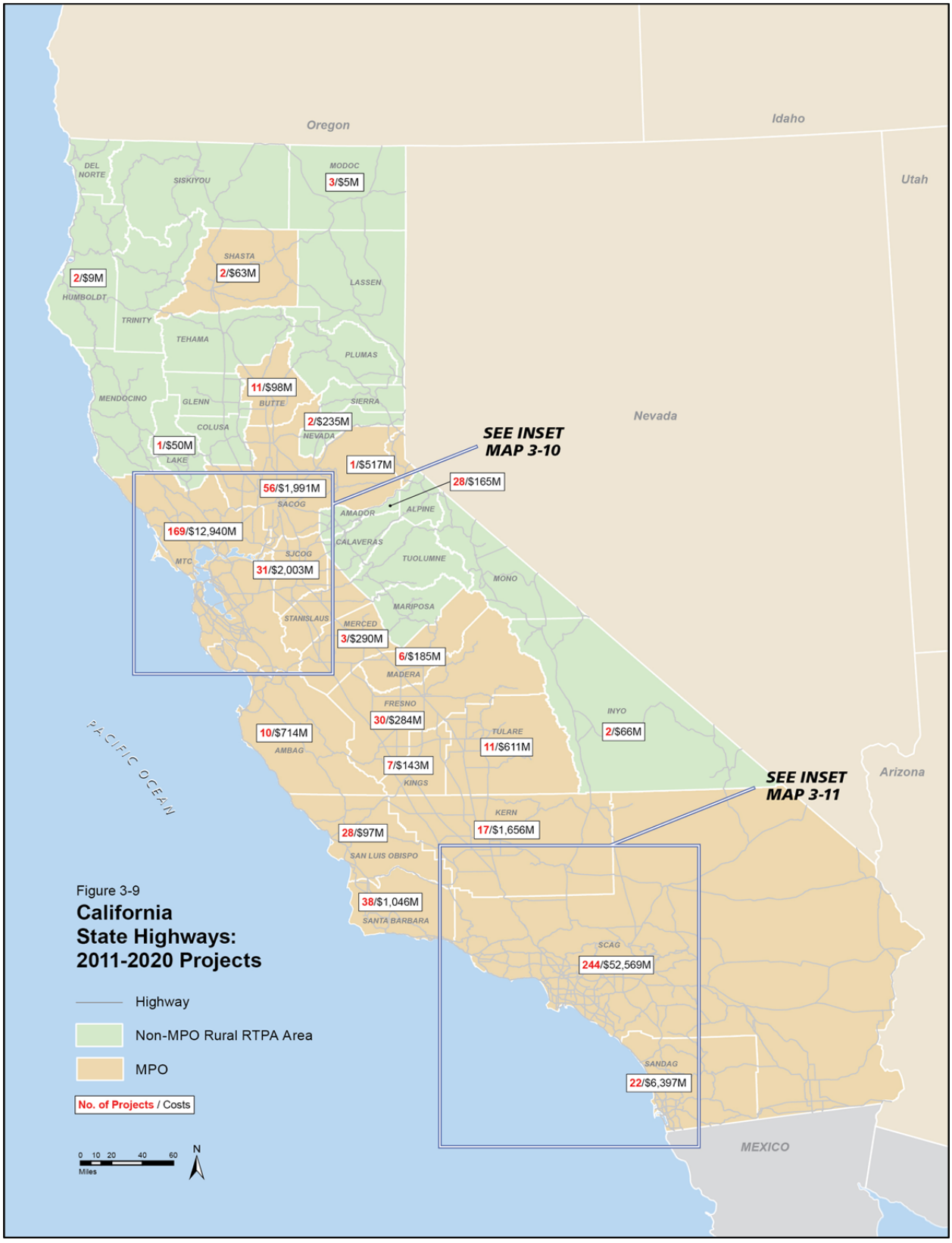
Managed Lanes, HOV, and Toll Road Projects

These projects, which are categorized separately in this report, involve either:

1. Traditional High-Occupancy Vehicle (HOV) lanes
2. A variant of traditional HOV lanes that allow drivers of single-occupancy vehicles to pay for access when excess capacity is available
3. Devices that directly control the flow of traffic in the lane (e.g., reversible-flow lanes with movable barriers)
4. Traditional toll roads and those with variable pricing

Regional transportation agencies identified $38.1 billion in projects that would involve new managed lanes, primarily on Interstate highways in urban areas.

[13] Does not include support costs


Oregon
Idaho
Utah
Nevada
Arizona
MEXICO
PACIFIC OCEAN
DEL NORTE
SISKIYOU
MODOC
3/$5M
SHASTA
2/$63M
2/$9M
HUMBOLDT
LASSEN
TRINITY
TEHAMA
PLUMAS
11/$98M
MENDOCINO
GLENN
BUTTE
SIERRA
2/$235M
COLUSA
NEVADA
1/$50M
LAKE
SEE INSET MAP 3-10
1/$517M
28/$165M
56/$1,991M
SACOG
AMADOR
ALPINE
169/$12,940M
CALAVERAS
SJCOG
MTC
31/$2,003M
TUOLUMNE
MONO
MARIPOSA
STANISLAUS
MERCED
3/$290M
6/$185M
MADERA
FRESNO
30/$284M
INYO
2/$66M
10/$714M
AMBAG
TULARE
11/$611M
7/$143M
KINGS
SEE INSET MAP 3-11
KERN
17/$1,656M
28/$97M
SAN LUIS OBISPO
38/$1,046M
SANTA BARBARA
SCAG
244/$52,569M
SANDAG
22/$6,397M
Figure 3-9
California State Highways: 2011-2020 Projects
Highway
Non-MPO Rural RTPA Area
MPO
No. of Projects / Costs
0 10 20 40 60
Miles
N

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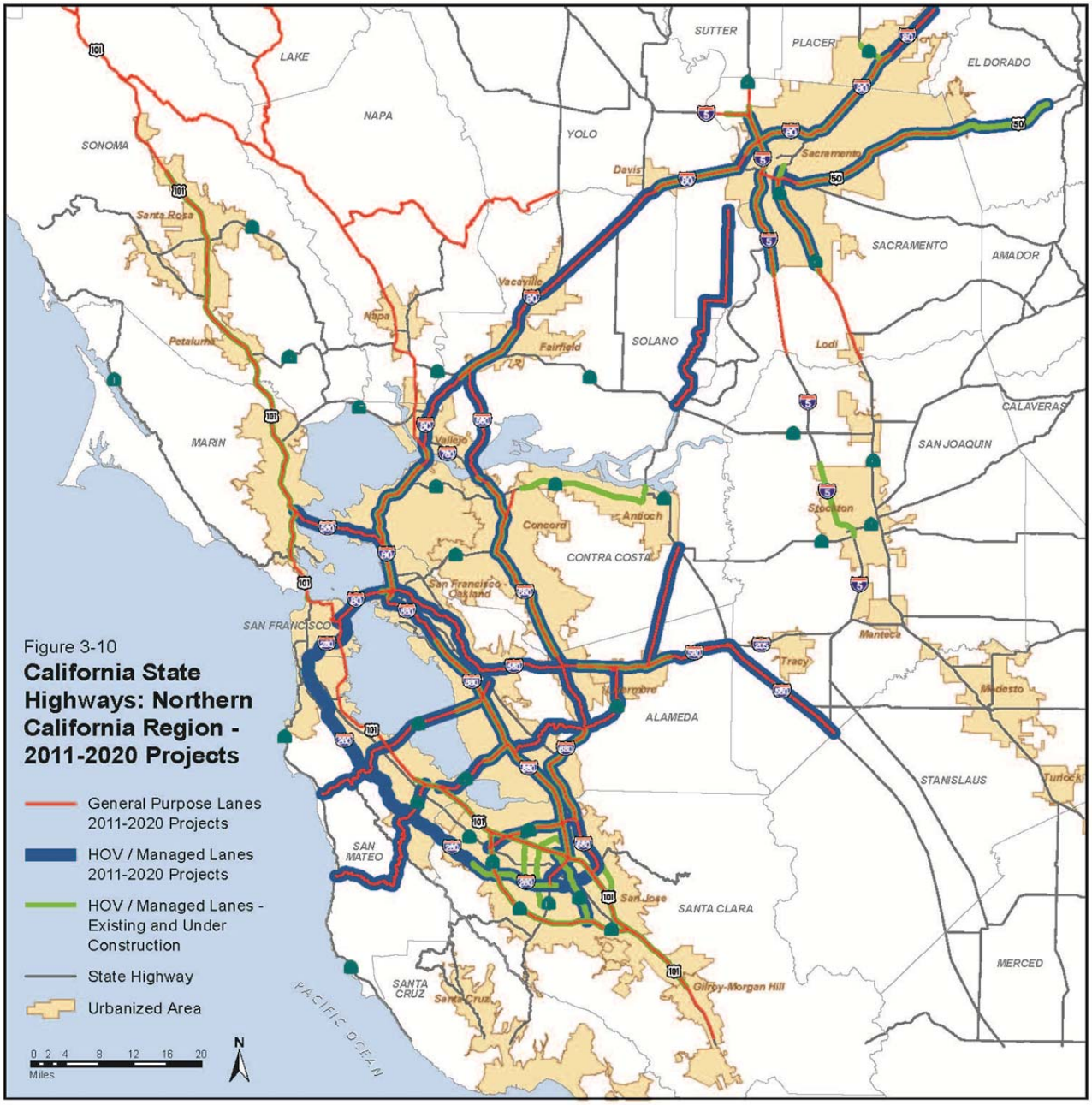
Figure 3-10
California State Highways: Northern California Region - 2011-2020 Projects
General Purpose Lanes 2011-2020 Projects
HOV / Managed Lanes 2011-2020 Projects
HOV / Managed Lanes - Existing and Under Construction
State Highway
Urbanized Area
0 2 4 8 12 16 20
Miles
N
SUTTER
PLACER
EL DORADO
LAKE
NAPA
YOLO
SONOMA
Davis
Sacramento
Santa Rosa
SACRAMENTO
AMADOR
Vacaville
Napa
Petaluma
Fairfield
SOLANO
Lodi
CALAVERAS
MARIN
Vallejo
SAN JOAQUIN
Stockton
Antioch
Concord
CONTRA COSTA
San Francisco - Oakland
SAN FRANCISCO
Manteca
Tracy
Livermore
Modesto
ALAMEDA
STANISLAUS
Turlock
SAN MATEO
San Jose
SANTA CLARA
MERCED
SANTA CRUZ
Santa Cruz
Gilroy-Morgan Hill
PACIFIC OCEAN

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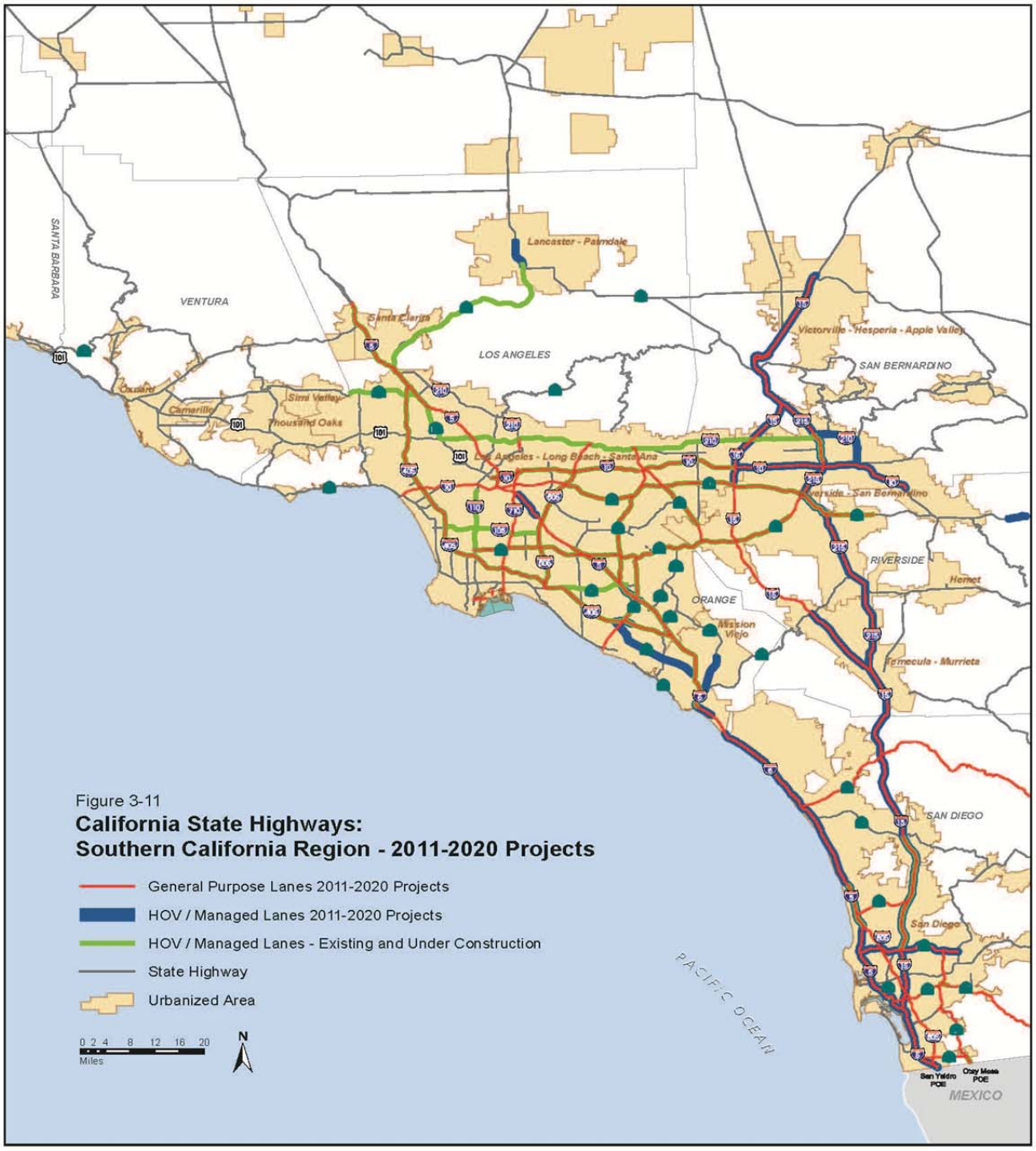

SANTA BARBARA
VENTURA
LOS ANGELES
SAN BERNARDINO
RIVERSIDE
ORANGE
SAN DIEGO
Lancaster - Palmdale
Santa Clarita
Victorville - Hesperia - Apple Valley
Oxnard
Camarillo
Simi Valley
Thousand Oaks
Los Angeles - Long Beach - Santa Ana
Riverside - San Bernardino
Hemet
Mission Viejo
Temecula - Murrieta
San Diego
PACIFIC OCEAN
San Ysidro POE
Otay Mesa POE
MEXICO
Figure 3-11
California State Highways:
Southern California Region - 2011-2020 Projects
General Purpose Lanes 2011-2020 Projects
HOV / Managed Lanes 2011-2020 Projects
HOV / Managed Lanes - Existing and Under Construction
State Highway
Urbanized Area
0 2 4 8 12 16 20
Miles
N

Interregional Road System

As discussed in Chapter 2, a statutorily designated Interregional Road System identifies the priority set of highways that provide for interregional travel and further specifies a core set of highways that are most important for travel between all regions of the state. In addition, many roads carry large volumes of travelers from one region to another, but have not been included on the state's "interregional road system". A continued focus on the vital Interregional Road System is needed to maintain and improve mobility between California's regions.

The 2010 Interregional Transportation Improvement Program (ITIP) identified 17 incomplete high priority projects that are particularly important for interregional travel. These would improve notable deficiencies on the State Highway System by adding new lanes, creating bypasses around highly congested communities, or upgrading from undivided two-lane conventional highway to divided expressway or freeway.[14] There are numerous additional projects identified in the ITIP, but these are the highest priority projects. They are sufficiently advanced in planning and project development and are well positioned for construction funding. Components of some of these projects are captured in the project lists submitted by regional planning agencies for this Needs Assessment. However, the projects are not consistently identified, and it is important to call out this small set of interregional projects. To avoid double counting funding needs, these ITIP projects are listed for information purposes only. They are not separately tallied in funding lists.

The ITIP priority projects are divided into Tier 1 and Tier 2, but all are vital to the corridors and communities they serve and they should be of very high priority for funding. The projects are presented below in order of the Caltrans districts in which they're located.

The Tier 1 projects are: San Luis Obispo 46 Widening (Whitley 2); Kern 14 Freeman Gulch Widening - Segment 1; Tulare 99 Tulare to Goshen 6-Lane Freeway Widening; San Bernardino 58 4-Lane Widening; and Stanislaus 108 Oakdale Bypass.

The Tier 2 projects are: Lake 29 Expressway Widening; Mendocino 101 Hopland Bypass; Shasta 299 Buckhorn Grade; Alameda 680 Sunol Grade; Santa Clara 152 Re-alignment; Fresno 41 County Line Expressway; Kern 395 Inyokern 4-Lane Widening; Los Angeles 710 Expansion; Inyo 395 Olancha and Cartago Expressway; Merced 152 Los Banos Bypass - Segment 1; Merced 99 6-Lane Widening; and Imperial 98 Widening. Such

[14] The 20-page 2010 ITIP can be viewed in its entirety at http://www.dot.ca.gov/hq/transprog/ocip/archives/stip2010/2010itip.pdf.

improvements increase mobility and safety, and benefit system operations along key interregional corridors.

It is important to note that the few projects listed in these two interregional priority tiers are limited by the projected ten-year availability of existing funding. The number of priority projects would be many times greater if the lists were instead based on capacity improvement needs.

Local Roads

California's 58 counties and 480 cities own and maintain 141,235 centerline-miles of local streets and roads. This is 82 percent of the state's publicly maintained centerline miles. The value of this network is at least $271 billion.

Regional transportation agencies identified about $24.1 billion in projects that would expand local roads over the next decade. Because of the way in which MPOs and Regional Transportation Planning Agencies report local road projects in their regional transportation plans, it is not possible to calculate the number of individual projects included in this list.

Regional transportation agencies identified about $24.1 billion in projects that would expand local roads over the next decade.

Public Transit

For purposes of this study, "Public transit," "Transit," and "Public Transportation" all refer to local or regional transit systems that are not operated by Caltrans. They include bus, rail, ferry, and paratransit services, which are open to the public and for which a fare is generally charged.

Regional transportation agencies identified nearly $31 billion in projects that would expand public transit over the next decade. These projects, totaling more than 350 individual projects, include a combination of rail, bus rapid transit, and local bus expansion projects. (See Figures 3-12, 3-13, and 3-14)

Regional transportation agencies identified nearly $31 billion in projects that would expand public transit over the next decade.

Intercity Rail

Caltrans' Division of Rail and regional transportation agencies identified nearly $6.2 billion in projects that would expand intercity passenger rail service over the next decade. As discussed in Chapter 4, High Speed Rail will provide a beneficial new means of mobility for California travelers. However, to succeed over the long-term, High Speed Rail will need funding for the full system. In order for High Speed Rail to be meaningful for passengers who are not adjacent to the line, it will also need a substantial investment in new and improved intercity and commuter rail and bus services to bring passengers to and from the high speed rail stations. For example, there is no existing state-supported train service directly connecting the state's two major population centers: Los Angeles and San Francisco. The Coast Rail Coordinating Council has been advocating

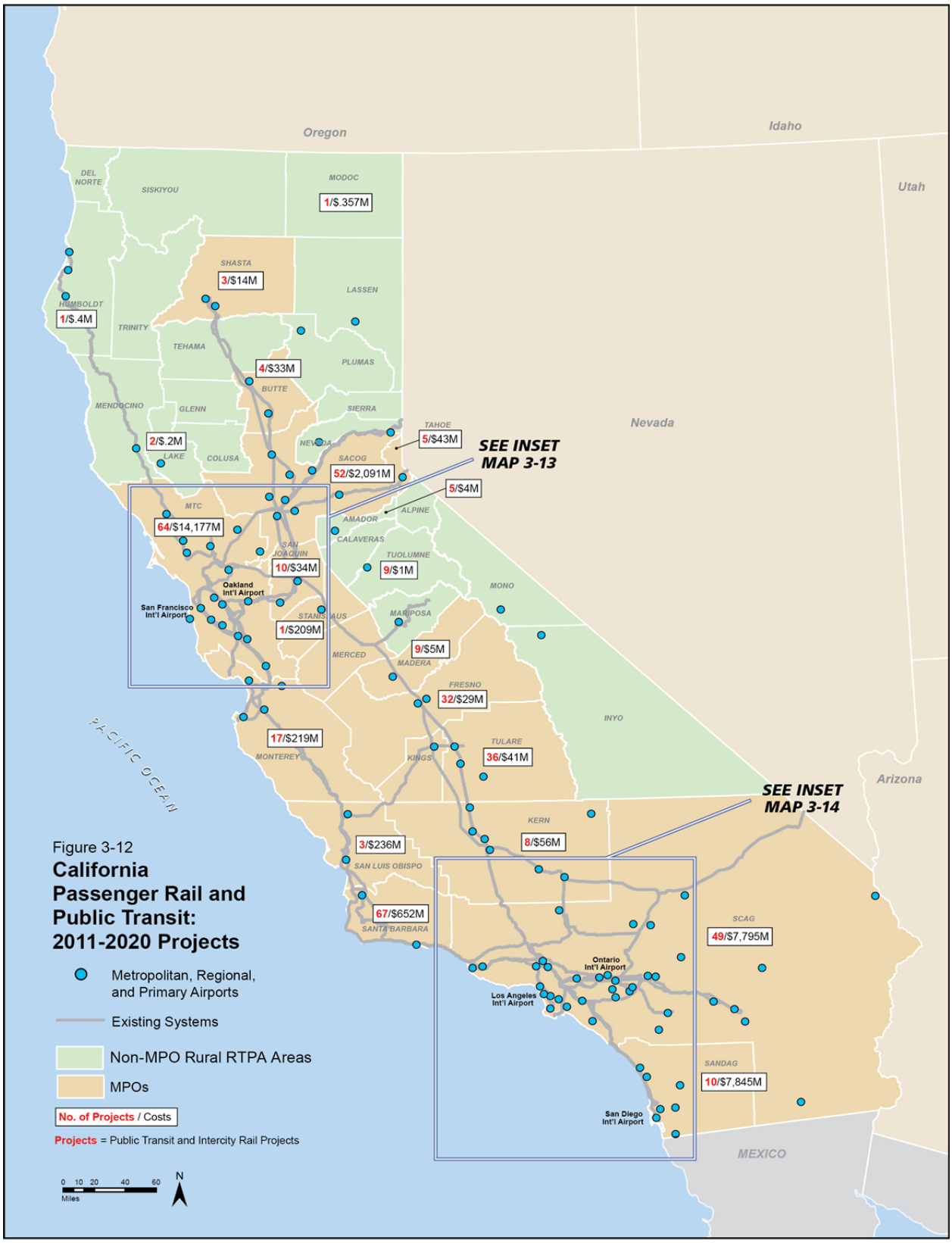
extension of the Pacific Surfliner services to San Francisco and $25 million is programmed for this purpose in Proposition 1B. For $1 billion, 3 hours can be reduced from the current 11 hour travel time between LA and SF. This service would help build support for higher speed rail and is immediately implementable.

In addition to these investments, opportunities exist to invest in critical rail infrastructure improvements as a way of blending improvements for all passenger rail services in Southern California. Specifically, improvements such as track capacity increases, grade separations, corridor preservation, and station enhancements in the Los Angeles-San Diego-San Luis Obispo (LOSSAN) rail corridor, the second busiest passenger rail corridor in the United States should happen concurrently with investments in the state's high-speed rail system. The LOSSAN corridor extends from San Diego to San Luis Obispo; the segments to be shared with high-speed trains are (1) from Anaheim to the San Fernando Valley and (2) potentially the City of San Diego. Rail improvements made now in these shared corridors would show early success and a statewide commitment to a network of rail services. Furthermore, because the high-speed link to San Diego is scheduled in a future phase, LOSSAN corridor improvements south of Anaheim would serve to improve service in the short –term and provide connectivity to the future high-speed rail system.

Freight Rail

Caltrans' Freight Planning Branch and several regional transportation agencies identified $21.9 billion in projects that would expand freight rail capacity over the next decade. (See Figure 3-15 for Goods Movement projects)[15]

[15] The freight component of a future high-speed rail system between the Ports and Downtown Los Angeles in the SCAG region is not included, even though it is in SCAG's 2008 RTP. SCAG is currently going through a review process to eliminate this project from the next constrained RTP due for adoption in April 2012. The business case used to justify this project in the 2008 RTP no longer appears to be valid.


Oregon
Idaho
Utah
Nevada
Arizona
MEXICO
PACIFIC OCEAN
DEL NORTE
SISKIYOU
MODOC
1/$.357M
SHASTA
3/$14M
LASSEN
HUMBOLDT
1/$.4M
TRINITY
TEHAMA
PLUMAS
4/$33M
BUTTE
MENDOCINO
GLENN
SIERRA
TAHOE
5/$43M
SEE INSET MAP 3-13
2/$.2M
LAKE
COLUSA
NEVADA
SACOG
52/$2,091M
5/$4M
MTC
ALPINE
AMADOR
64/$14,177M
CALAVERAS
SAN JOAQUIN
TUOLUMNE
10/$34M
9/$1M
Oakland Int'l Airport
San Francisco Int'l Airport
MONO
STANISLAUS
MARIPOSA
1/$209M
MERCED
9/$5M
MADERA
FRESNO
32/$29M
INYO
17/$219M
TULARE
MONTEREY
KINGS
36/$41M
SEE INSET MAP 3-14
KERN
3/$236M
8/$56M
SAN LUIS OBISPO
67/$652M
SANTA BARBARA
SCAG
49/$7,795M
Ontario Int'l Airport
Los Angeles Int'l Airport
SANDAG
10/$7,845M
San Diego Int'l Airport
Figure 3-12
California Passenger Rail and Public Transit: 2011-2020 Projects
Metropolitan, Regional, and Primary Airports
Existing Systems
Non-MPO Rural RTPA Areas
MPOs
No. of Projects / Costs
Projects = Public Transit and Intercity Rail Projects
0 10 20 40 60
Miles
N

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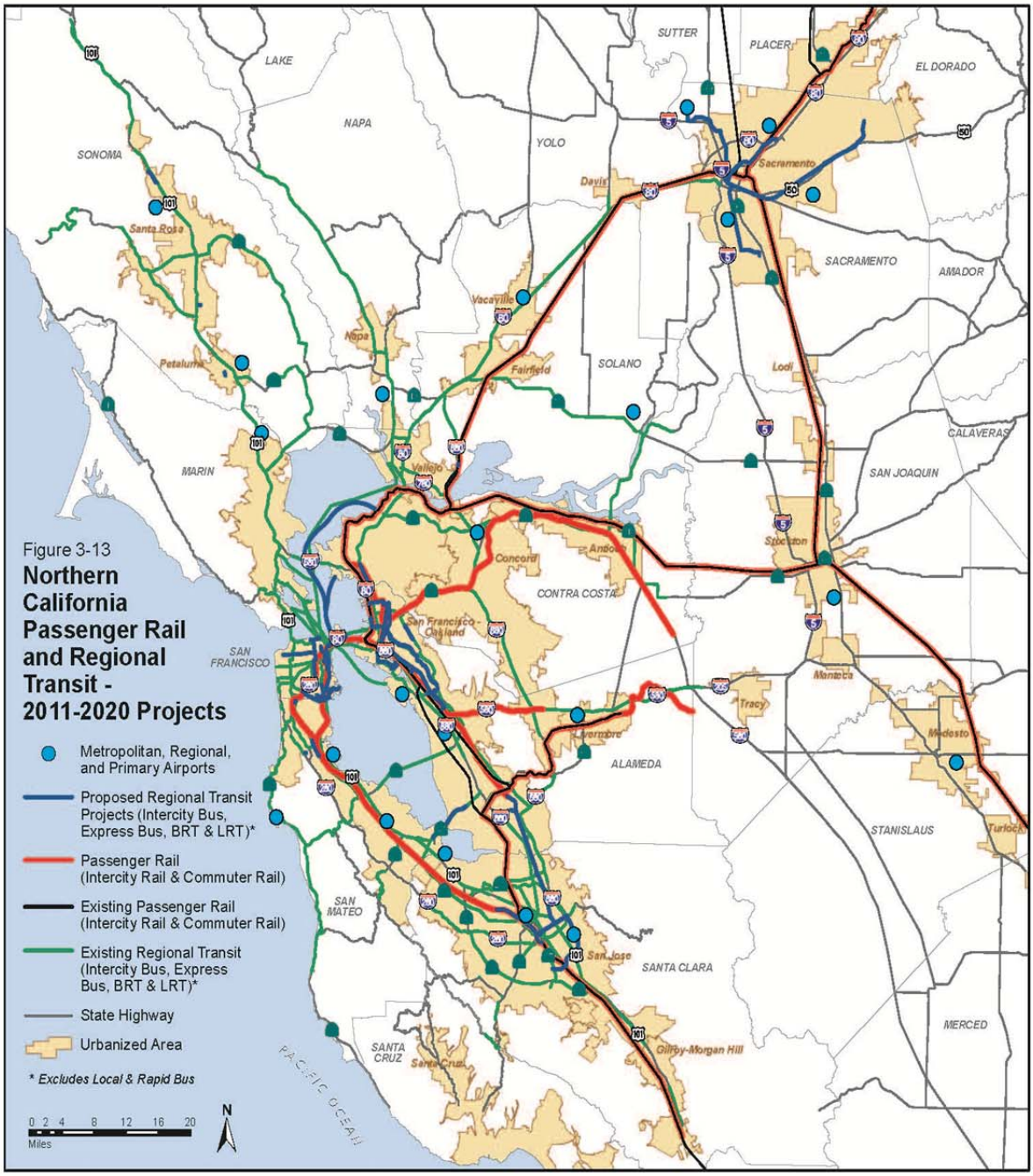
Figure 3-13
Northern California Passenger Rail and Regional Transit - 2011-2020 Projects
Metropolitan, Regional, and Primary Airports
Proposed Regional Transit Projects (Intercity Bus, Express Bus, BRT & LRT)*
Passenger Rail (Intercity Rail & Commuter Rail)
Existing Passenger Rail (Intercity Rail & Commuter Rail)
Existing Regional Transit (Intercity Bus, Express Bus, BRT & LRT)*
State Highway
Urbanized Area
* Excludes Local & Rapid Bus
0 2 4 8 12 16 20
Miles
N
PACIFIC OCEAN
SONOMA
LAKE
NAPA
SUTTER
PLACER
EL DORADO
YOLO
SACRAMENTO
AMADOR
SOLANO
CALAVERAS
SAN JOAQUIN
MARIN
CONTRA COSTA
SAN FRANCISCO
ALAMEDA
STANISLAUS
SAN MATEO
SANTA CLARA
MERCED
SANTA CRUZ
Santa Rosa
Petaluma
Napa
Vacaville
Fairfield
Vallejo
Davis
Sacramento
Lodi
Stockton
Antioch
Concord
San Francisco - Oakland
San Jose
Tracy
Livermore
Manteca
Modesto
Turlock
Gilroy-Morgan Hill
Santa Cruz

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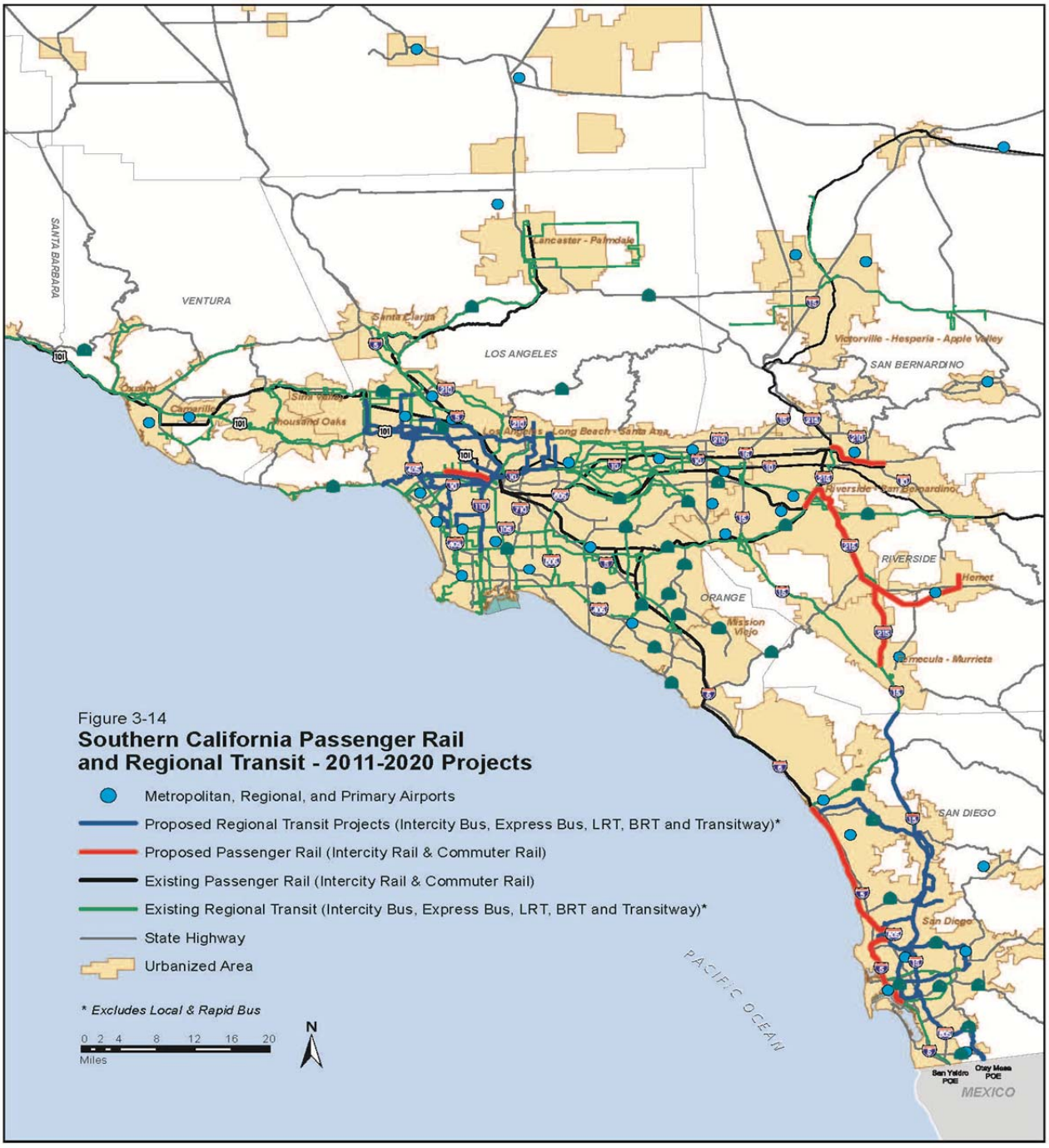
SANTA BARBARA
VENTURA
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SAN BERNARDINO
RIVERSIDE
ORANGE
SAN DIEGO
Lancaster - Palmdale
Santa Clarita
Victorville - Hesperia - Apple Valley
Oxnard
Camarillo
Simi Valley
Thousand Oaks
Los Angeles - Long Beach - Santa Ana
Riverside - San Bernardino
Hemet
Mission Viejo
Temecula - Murrieta
San Diego
PACIFIC OCEAN
San Ysidro POE
Otay Mesa POE
MEXICO
Figure 3-14
Southern California Passenger Rail and Regional Transit - 2011-2020 Projects
Metropolitan, Regional, and Primary Airports
Proposed Regional Transit Projects (Intercity Bus, Express Bus, LRT, BRT and Transitway)*
Proposed Passenger Rail (Intercity Rail & Commuter Rail)
Existing Passenger Rail (Intercity Rail & Commuter Rail)
Existing Regional Transit (Intercity Bus, Express Bus, LRT, BRT and Transitway)*
State Highway
Urbanized Area
* Excludes Local & Rapid Bus
0 2 4 8 12 16 20
Miles
N

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Oregon
Idaho
Utah
Nevada
Arizona
MEXICO
2/$.3M
9/$449M
9/$777M
23/$8M
65/$4,749M
36/$13M
1/$.7M
1/$25M
2/$142M
4/$41M
69/$27,987M
11/$546M
Figure 3-15
California
Goods Movement:
2011-2020 Projects
Port of Entry
Future Port of Entry
Ports
Commercial-Regional and Primary Airports
Existing Systems
Non-MPO Rural RTPA Area
MPO
No. of Projects / Costs
Projects = Land Ports, Airports, Sea Ports, Intermodal Facilities, and Freight Projects
N

Seaports

Caltrans' Freight Planning Branch identified nearly $7.1 billion in projects that would expand ground transportation around seaports over the next decade.

Airports

Caltrans' Division of Aeronautics and several regional transportation agencies identified nearly $4.6 billion in projects that would expand ground transportation around airports over the next decade.

The total cost of all system expansion, system management, and system preservation projects during the ten-year study period is $538.1 billion.

Land Ports

Regional transportation agencies identified about $33.8 billion in projects that would expand land ports over the next decade, including a new Port of Entry at Otay Mesa East.

Major Intermodal Facilities

Regional planning agencies identified over $5.9 billion in projects that would construct or expand major intermodal facilities over the next decade.

Bicycle and Pedestrian Projects

Regional agencies identified over $3.9 billion in projects that would add or expand bicycle and pedestrian facilities over the next decade.

E. NEEDS ANALYSIS – SUMMARY

The overall results of the transportation systems needs analysis for the ten-year period from 2011 to 2020 is summarized in Table 3-10. The total cost of all system expansion, system management, and system preservation projects during the ten-year study period is nearly $538.1 billion. Of this total, the cost of system expansion projects and system management projects over the ten-year study period is estimated at $197 billion, while the cost of system preservation projects (both rehabilitation projects and maintenance costs) during the study period is $341.1 billion.

The total estimated revenue from all sources during the ten-year study period is $242.4 billion. This represents about 45 percent of the overall estimated costs of needed projects and programs, or an overall short fall of $295.7 billion over the ten-year period.

With regard to revenues, the total estimated revenue from all sources during the ten-year study period is $242.4 billion. This represents about 45 percent of the overall estimated costs of needed projects and programs, or an overall short fall of $295.7 billion over the ten-year period. If it is assumed that revenues for preservation (rehabilitation and maintenance)

are provided at historical levels (43.4%), then the amount of revenue available for system expansion and system management projects during this period is $94.7 billion, or only about 48 percent of the estimated costs of needed projects.

Table 3-9. Ten-Year Cost-Revenue Summary

	A. Preservation - Rehabilitation	B. Preservation - Maintenance	C. Preservation - Subtotal	D. System Management	E. System Expansion	F. Subtotal (D+E)	Total
Costs:							
Highways	$70,380,000	$9,280,000	$79,660,000	$7,544,777	$78,740,144	$86,284,921	$165,944,921
Local Roads	NA	NA	$102,900,000	$2,294,798	$24,155,968	$26,450,766	$129,350,766
Public Transit	$32,675,000	$109,682,000	$142,357,000	$1,270,308	$30,903,798	$32,174,106	$174,531,106
Inter-city Rail	NA	NA	$170,000	$94,045	$6,143,864	$6,237,909	$6,407,909
Freight Rail	$64,420	$0	$64,420	$387,332	$21,924,017	$22,311,349	$22,375,769
Seaports	$4,600,000	$0	$4,600,000	$402,550	$7,097,466	$7,500,016	$12,100,016
Airports	$10,420,000	$0	$10,420,000	$953,892	$4,553,791	$5,507,683	$15,927,683
Land Ports	NA	NA	$935,000	$0	$33,798	$33,798	$968,798
Intermodal Facilities	NA	NA	$0	$0	$5,946,876	$5,946,876	$5,946,876
Bike / Ped	NA	NA	$0	$577,816	$3,935,565	$4,513,381	$4,513,381
Total Costs*			$341,106,420	$13,525,518	$183,435,287	$196,960,805	$538,067,225
Revenues:							
Federal	NA	NA	NA	NA	NA	NA	$30,900,000
State	NA	NA	NA	NA	NA	NA	$53,100,000
Regional / Local	NA	NA	NA	NA	NA	NA	$158,400,000
Total Revenues			$147,707,000			$94,693,000	$242,400,000
Net Revenues			($193,399,420)			($102,267,805)	($295,667,225)
% Funded			43.30%			48.08%	45.05%

NOTE: Amounts reported in $ thousands ($000's)

* Includes $3.81 billion in SHOPP Mobility Program costs under (D) System Management

CHAPTER 4
HIGH-SPEED RAIL SYSTEM

BACKGROUND

The California High-Speed Rail Authority (Authority) proposes to construct, operate, and maintain a statewide California High-Speed Train Program (CHSTP). When completed, the new high-speed rail system will span nearly 800 miles and provide reliable, high-speed electrified train service between the Bay Area, the Central Valley, Sacramento, and Southern California. The new high-speed rail system will be grade-separated from road vehicle traffic, and it will operate almost exclusively on separate, dedicated tracks. It will travel with top design speeds of up to 250 miles per hour (mph) and an operating speed of up to 2260 mph. The new high-speed rail system will incorporate state-of-the art safety, signaling, and automated train control systems.

When completed, the new high-speed rail system will span nearly 800 miles.

The CHSTP is planned to be built in incremental stages. The full Phase 1 of the CHSTP will construct about 520 miles of rail between San Francisco and Anaheim. When completed, Phase 1 will provide a 2-hour and 40-minute nonstop service from San Francisco to Los Angeles. Subsequent phases of the CHSTP include a southern extension (Los Angeles to San Diego via the Inland Empire) and a northern extension (Merced to Sacramento). The estimated cost for Phase 1 as reported in the Draft Business Plan, which would be completed by 2033, is $98.5 billion in the year of expenditure.

As presented in the Draft 2012 Business Plan, Phase 1 of the HST System will be built in stages. Construction is planned to start next year on an initial section of track in the Central Valley with $6 billion of funding. This section can also serve as a test track and form the backbone of subsequent stages of the system. The initial operating segment (IOS) providing high-speed service will stretch either from Merced to the San Fernando Valley or from San Jose to Bakersfield. The Authority plans to build this segment by 2021 at a cost of $30.7 to $33.2 billion. Subsequently, the HST network would provide service from the Bay Area to the LA Basin, connecting with Metrolink and Caltrans for blended operations. The Phase 1 system will be completed with trains running from the ARTIC station in Anaheim to the Transbay Terminal in San Francisco. The revenue secured for the project, as of June 2011, is $6.3 billion. This includes $3.5 billion in federal funding and $2.8 billion in state funding. An additional $6.2 billion in state funds will become available when matched with federal, local, or private funds.

TRANSPORTATION BENEFITS

The full grade separation of the alignment from crossing road traffic, alignment fencing, and intrusion detection will be the most important safety improvements to the transportation system growing from this investment. They will improve safety for road users, rail passengers, railroad personnel, pedestrians, and wildlife that cross the corridor.

The California high-speed train (HST) will be the primary expansion of inter-city passenger rail service by:

- Creating direct interregional partnership (IRP) service from San Diego, Orange County, Riverside, and Los Angeles counties to the Central Valley, Sacramento, and the Bay Area, and by extending the network from Los Angeles to San Diego by way of the Inland Empire;
- Extending the IRP network up the San Francisco Peninsula to serve San Mateo and San Francisco counties; and
- Providing vastly improved travel times, capacity, and frequency of service.

The California HST also will reinforce and improve elements of the existing IRP service. These include:

- Providing an overlay of express high-speed IRP service along the route of the existing San Joaquin services from Bakersfield to Sacramento;
- Providing an overlay of express high-speed IRP service from Anaheim to Burbank along the route of existing Surfliner services; and
- Expanding passenger demand at existing IRP stations, creating the base for expanded intermodal opportunities including rail and bus transit, shuttle, and taxi services (Anaheim, Norwalk/Fullerton, Los Angeles Union Station, Burbank, Bakersfield, Fresno, Merced, Modesto, Stockton, Sacramento, and San Jose).

The California HST will provide on-time performance of nearly 100 percent (arrival at end-point stations within ten minutes, the same standard applied to Acela regardless of distance), based on experience with European and Japanese operations that are completely grade-separated and on a new infrastructure, as will be the case with the California HST. Intermediate point punctuality will be very high as well, with delays per 10,000 train miles estimated at less than 66 minutes. This is equivalent to a cumulative three-minute delay from scheduled arrivals at all intermediate points on a Los Angeles to San Francisco run, and less than the normal schedule allowance for end point arrival. These are major improvements over existing IRP service in the United States, where the Acela is 90 percent on time and the Northeast Corridor, the best ranked host railroad, experiences more than 600 minutes in train delay per 10,000 train miles.

Forecast passenger revenues will exceed operating and maintenance costs.

The most telling indicator of how much the California HST will improve IRP service is that the forecast passenger revenues will exceed operating and maintenance costs. This is the case for high-speed services around the world, including the Acela service. In fiscal year 2010-11, Acela generated a surplus of $100.6 million in revenue over fully allocated operations and management costs, excluding depreciation and interest. As included in the Draft 2012 Business Plan, the forecast surplus in 2040 is $2-3 billion for the Phase 1 system. But even the shorter initial operating segments are forecast to generate operating profits under high, medium, and low ridership scenarios.

The California HST project will be separated from the freight railroad operation, except for areas where freight lines are crossed or where the alignment is adjacent to the freight rail right-of-way.

The project anticipates some private financing, and a wide range of other possible funding mechanisms is being explored. Such arrangements will equitably link investments with the expected risks and returns for the project. Private investment is expected to play a significant role in the project.

ENVIRONMENTAL AND ENERGY BENEFITS

The Full System CHSTP will reduce oil consumption by 12.7 million barrels (bbls) of oil annually by 2030.

The Phase 1 system will reduce oil consumption by 4.5 million barrels (bbls) of oil annually by 2040. As documented in the Draft 2012 Business Plan, this savings is from diverting air and auto passengers to the electrified California HST, which is expected to be powered entirely from renewable sources. The Authority board has adopted the goal of relying on renewable sources of energy, and the industry is expected to develop sufficient capacity and reliability to provide power from renewables to the California HST service at a relatively small premium to fossil fuel sourced power.

Over time, the fuel savings will continue to increase with growth in ridership:

2040: 4.5 million bbls

2050: 5.3 million bbls

2060: 6.2 million bbls

The shift of travelers from air and auto to the California HST, and reductions in fossil fuel consumption, will reduce greenhouse gas and other pollutant emissions.

The shift of travelers from air and auto to the California HST, and reductions in fossil fuel consumption, will reduce greenhouse gas and other pollutant emissions. Carbon dioxide (CO_2) reductions of 4.8 billion pounds in air and auto emissions in 2040 are documented in the Draft 2012 Business Plan for the Phase 1 system. Additionally, reductions in carbon monoxide (14,800 pounds/day); 2.5 and 10

micron particulate matter (1,200 pounds/day); nitrogen oxide (1,800 pounds/day); and total organic compounds (1,700 pounds/day) are shown in the Draft 2012 Business Plan under the medium ridership scenario for 2050

Operation of an initial Operating Segment (IOS) will begin even before completion of Phase 1, and generate a proportion of the energy savings. These energy savings will depend on which IOS is chosen.

LIVABLE COMMUNITIES

As part of its environmental sustainability program, the Authority has made a commitment to build its high-speed rail system in a way that encourages higher density development around its stations. The goal is to integrate the system with surrounding land uses. While local communities and the real estate market will determine actual land use decisions, the Authority already is providing grants to Central Valley communities that have stations. These grants will help determine how to build on the transportation investment to improve each community's economic and social vitality.

The Authority also has noted that high-speed rail investments will promote the six livability principles developed by the Department of Transportation, Housing and Urban Development, and the Environmental Protection Agency as part of the Partnership for Sustainable Communities:

1. Greater transportation choice
2. Promoting equitable, affordable housing
3. Enhanced economic competitiveness
4. Support of existing communities
5. Coordination of federal policies and leveraging of the federal investment
6. Valuing communities and neighborhoods

CHAPTER 5
TRANSPORTATION SYSTEM NEEDS ON TRIBAL LANDS

As part of this Needs Assessment, the California Department of Transportation (Caltrans) distributed a survey to the 109 federally recognized Native American tribes in the state. Caltrans district liaisons and various tribal agencies notified tribal members that information was needed for the survey, which was called the Statewide System Management and Expansion Survey.

As of April 2011, $15.5 million in system expansion and management needs were identified for just 5.5 percent of the Native American tribes in California.

As of April 2011, $15.5 million in system expansion and management needs were identified for just 5.5 percent of the Native American tribes in California.[1] A much greater need for transportation improvements exists among the state's remaining tribal communities. In 1999, for example, the California Transportation Commission identified $218 million in needed transportation projects on tribal lands.[2]

Caltrans is working with the state's tribes and the Bureau of Indian Affairs (BIA) to fully identify what is needed today.

Caltrans is working with the state's tribes and the Bureau of Indian Affairs (BIA) to fully identify what is needed today. The Indian Reservation Roads Program (IRR), which is jointly administered by the BIA and the Federal Highway Administration's Federal Lands Highway Office, lays out planning processes for tribes to follow and provides funding for the planning, design, construction, and maintenance of eligible transportation infrastructure. This includes public roads that are situated within, or provide access to, an Indian reservation or Indian Trust land. The Federal Highway Administration allocates funds to the BIA at the U.S. Department of the Interior, and the BIA distributes funds to tribes based on a funding formula that depends partly on the number of miles of roadway that tribes have in the agency's inventory.

California is home to the largest Native American population in the nation, but in 2008 the state's 109 tribes received only 1.88 percent of the total IRR allocation for that year ($5,817,473).

California is home to the largest Native American population in the nation, but in 2008 the state's 109 tribes received only 1.88 percent of the total IRR allocation for that year ($5,817,473). IRR funds are not part of California's federal-aid program; however, the IRR is one of the few tribal funding sources that can be used as a local match for federal-aid projects.

1 Articulating transportation system needs in tribal communities is difficult, in part because aligning state and tribal planning processes is challenging. Also, many tribal projects, which have limited funding and often are situated in rural locations, may not fit into the categories that the survey identified.

2 California Transportation Commission, Inventory of Ten-Year Funding Needs for California's Transportation Systems, Native American Reservation Roads and Access Roads, May 5, 1999.

Beyond roads funded by the BIA, Native American tribes may propose projects for federal transportation programs that the states administer. This includes the State Transportation Improvement Program. States may fund projects to rehabilitate, improve, and construct roads by using funds from the federal bill, *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users*. SAFETEA-LU, first signed into law in 2005, governs federal spending on surface transportation projects.

Only 51 percent of California's Native American tribes have access to long-distance transportation within 20 miles of reservation boundaries.

In the past, California has not explicitly funded reservation access roads, except where they are incidental to other purposes.

During the fiscal year 2008-2009, Tribal Transportation Needs Assessments were prepared for 43 of the tribes in California (this represents 39 percent of the total number of California tribes). LSC Transportation Consultants, Inc. and Nelson\Nygaard Consulting Associates prepared these assessments, which identified the general needs listed below. They are not specific to any particular project.

Of these 43 tribes:

- 93 percent have access to state routes that offer an entry and exit to tribal lands.
- 37 percent are in areas where the state route needs safety improvements. Many reservation roads also need safety improvements.
- 49 percent have roads or parking areas that need pavement and/or a major rehabilitation of pavement (i.e., an unpaved or poorly paved road that is not safe or restricts mobility).
- Only 51 percent have access to long-distance transportation (i.e., an airport, Amtrak, or Greyhound) within 20 miles of reservation boundaries.
- Only 9 percent have bike and/or pedestrian facilities.

CHAPTER 6
PERFORMANCE ANALYSIS

The previous chapters of this report have provided a comprehensive assessment of what is needed to improve California's transportation system over the next ten years, as well as the resources required to meet these needs. In this chapter, we will provide an assessment of the outcomes that would result if these transportation system improvements were implemented by 2020.

This information is presented by using a set of performance measures. Performance measures quantify the consequences of a decision or action, and they are an efficient way to present important information to system users, managers, and decision-makers objectively, concisely, and consistently.

Transportation performance measures forecast, evaluate, and monitor the degree to which the transportation system meets the goals and objectives for improved mobility that the public has adopted.

Transportation performance measures forecast, evaluate, and monitor the degree to which the transportation system meets the goals and objectives for improved mobility that the public has adopted. To select an appropriate set of transportation performance measures for this report, the "Smart Mobility 2010" report prepared last year by California Department of Transportation (Caltrans) was used. This report contains a recommended set of "Smart Mobility Performance Measures (SMPMs)" that is intended to show the relationship between transportation and land use decisions, as well as the economic, social, and environmental consequences of those decisions. According to Caltrans, "SMPMs are intended for use in decision-making at both the planning and the project level to evaluate progress toward implementing the principles of Smart Mobility and attaining Smart Mobility benefits." A set of 17 performance measures, organized into six categories that are related to Smart Mobility Principles, are identified in the Caltrans report (see Table 6-1). (It should be noted that Caltrans, the CTC, and the MPOs have many other performance measures that they each track and report on, or are planning to monitor in the future.)

Table 6-1. Smart Mobility Performance Measures

Using Performance Measures to Advance Smart Mobility

Goal	Performance Measure	Recommended Metrics
Location Efficiency	1. Support for Sustainable Growth	Consistency with regional Sustainable Communities Strategy or Alternative Planning Strategy meeting regional performance standards. Comparison of alternatives based on acres of land consumed, and relative reductions in induced VMT through: compact land use strategies, demand management, and network management.
	2. Transit Mode Share	Percentage of trips within a corridor or region occurring by bus, rail or by other form of high-occupancy-vehicle.
	3. Accessibility and Connectivity	Number of households within 30 minute transit ride of major employment center, within 20 minute auto ride of employment, within walking distance of schools. Weighted regional travel time and cost among trip producers and trip attractors.
Reliable Mobility	4. Multi-Modal Travel Mobility	Travel times and costs by mode between representative origins and destinations, aggregated over corridor or region.
	5. Multi-Modal Travel Reliability	Day-to-day variability of travel times between representative origins and destinations by mode, aggregated over corridor or region.
	6. Multi-Modal Service Quality (Level of Service: LOS)	Mode-specific and blended LOS measures of pedestrian and bicycle accommodation and comfort, transit availability and reliability, and auto travel efficiency.(1)
Health and Safety	7. Multi-Modal Safety	Collision rate and severity by travel mode and facility, compared to statewide averages for each user group and facility type.
	8. Design and Speed Suitability	Conformance with guidance identifying suitable design elements and traffic speed with respect to mix of modes and adjoining land uses and area character.(2)
	9. Pedestrian & Bicycle Mode Share	Percentage of trips within a corridor or region occurring by walking or cycling.
Environmental Stewardship	10. Climate and Energy Conservation	VMT per capita by speed range relative to State and regional targets.(3)
	11. Emissions Reduction	Quantities of criteria pollutants and GHGs
Social Equity	12. Equitable Distribution of Impacts	Impact of investments on low-income, minority, disabled, youth and elderly populations relative to impacts on population as a whole.
	13. Equitable Distribution of Access and Mobility	Comparative travel times and costs by income groups and by minority and non-minority groups for work/school and other trips.
Robust Economy	14. Congestion effects on Productivity	Time lost to congestion by trips that are economically productive and/or sustaining of essential mobility, measured as vehicle hours of delay (VHD).
	15. Efficient Use of System Resources	Additional VMT that are associated with economic productivity and/or sustaining of essential mobility compared with system expansion cost and impact.
	16. Network Performance Optimization	VHD per capita, per lane mile, per private vehicle mile, per freight vehicle mile, per transit revenue mile, and in total.
	17. Return on Investment	Person miles and revenue per lane mile of road, per transit revenue mile and per dollar invested (from all public and private funding sources). Comparison of alternatives based on benefits per dollar invested relative to: a) system user benefits (time and expense), and b) other Smart Mobility Performance Measures.

(1) Typical resource: Transportation Research Board 2010 Highway Capacity Manual.

(2) Typical resources: Caltrans DD64 Complete Streets guidelines; ITE practices on Context Sensitive Solutions.

(3) Targets set by California Air Resources Board under SB375. Rates of GHG emissions and fuel consumption both vary by speed range or "bin."

Smart Mobility 2010: A Call to Action for the New Decade 55

Through discussions with the California Transportation Commission (CTC) Transportation Finance Executive Group, as well as the Metropolitan Planning Organization (MPO)/State Agency Planning Working Group on Senate Bill 375 (Steinberg, 2008) (SB 375) implementation, a set of performance measures of a broad range of desired outcomes was identified (see Table 6-2). Each of the 18 MPOs was asked to provide available information for these categories. In the following sections, the results of this analysis are discussed.

Table 6-2. Statewide Transportation Needs Assessment - Selected Performance Measures

SMART MOBILITY 2010 GOALS	CATEGORIES	PERFORMANCE MEASURES
Robust Economy	Employment	Increase in jobs
Robust Economy	Economic Output	Value added to Gross State Product
Reliable Mobility	Multimodal Travel Mobility	Change in average per-trip travel time
Reliable Mobility	Asset Condition	Conformance with accepted standards for maintaining system in state of good repair
Environmental Stewardship	Climate and Energy Conservation	Systemwide Vehicle Miles Traveled (VMT) per capita
Environmental Stewardship	Emissions Reductions	Greenhouse Gas (GHG) emissions per capita
Environmental Stewardship	Air Quality/Public Health	Criteria Pollutant emissions per capita
Social Equity	Equitable Distribution of Access and Mobility	Comparison of outcomes for Low Income and Minority (LIM) and non-LIM communities (qualitative discussion)
Health and Safety	Multimodal Safety	Number of injuries and fatalities per capita from all collisions (including bicycle and pedestrian)
Health and Safety	Pedestrian and Bicycle Mode Share	Percent of total trips per capita taken by biking or walking
Location Efficiency	Support for Sustainable Growth	Percent of total dwelling units in Transit Priority Areas
Location Efficiency	Transit Mode Share	Percent of total trips per capita taken by transit

ECONOMIC PERFORMANCE MEASURES

The first two measures, "Increase in Jobs" and "Value Added to Gross State Product," are related to the Smart Mobility Principle of Robust Economy. The results for these two measures were estimated by Caltrans economists who used transportation model outputs provided by the MPOs.

Long-Term Economic Productivity Gains

According to Caltrans economists, there is no general model or methodology available for estimating the long-term increase in business and employment activity that may result from improved mobility. Transportation projects improve mobility by reducing travel time for commuters, business travel, and freight, which are key economic drivers. The resulting improvement in access to labor markets and the savings in business costs (such as freight transport costs and inventory carrying costs) enhance business profitability and productivity. This, in turn, promotes additional economic activity, generating income and employment. However, these gains in economic productivity can differ significantly from one geographic area to another. This is due to differences in levels of agglomeration (the proximity of industries or businesses to one another), local job market and work patterns, the economic profile of the areas, the nature of the residents-business linkages, and other factors.

Transportation projects improve mobility by reducing travel time for commuters, business travel, and freight, which are key economic drivers.

In order to provide a high-level economic analysis of the entire package of projects in this report, Caltrans economists developed a simplified methodology that uses standard multipliers across the state. This "productivity gains model" formulated economic multipliers that link improved mobility (measured as person-hours of delay saved) to the long-term impacts on the California Gross State Product (GSP) and job creation. The methodology is based on analyzing the output per worker in the state as a proxy for the opportunity cost of worker time (i.e., what workers could produce if they spent less time in traffic). The data used in the analysis comes primarily from the Federal Reserve Bank of San Francisco, the Bureau of Economic Analysis at the U.S. Department of Commerce, and the California Department of Finance. The estimates of economic gains that are presented below were validated against economic impact studies of transportation projects that were conducted recently using more complicated regional economic models (that is, by using techniques such as input-output and general equilibrium).

Caltrans economists developed a range of estimates, from conservative to optimistic. Given the current uncertainty over the pace of economic recovery, the three alternative scenarios presented below can be thought of as:

- Low - assumes a slow recovery;
- Medium – assumes growth that follows the historical trend line; and
- High – assumes a fast or above-average recovery.

We used the output data from regional travel demand models (provided by MPOs) that forecast 2020 total Vehicle Hours Traveled and Vehicle Miles Traveled (VMT) for both "No-Build" and "Build" alternatives. We then utilized our methodology to estimate Value Added to GSP and Jobs Added for the first ten years. We also extrapolated the expected gains for ten more

years under each recovery scenario (listed above), assuming that the transportation benefits in subsequent years would be similar to 2020. We know that demand, as well as delay, may increase after 2020. But more projects also will be built that address some of this delay. In the absence of more information, we have assumed that the 2020 delay savings are representative of how much the projects in the Report will help reduce delays during the period 2021-2030.

Summary Results:
The results for the first ten years indicate that Total Value Added to GSP would range from an additional $110 billion (Low) to $140 billion (High) (See Table 6-3). This represents about 5 to 7 percent of the current GSP (estimated at $1.9 trillion). Over the same period, we estimated that the projects would add between 77,000 and 108,000 jobs annually, compared with the No-Build alternative. The annual job growth would continue throughout the evaluation period. Another way of looking at this benefit is that the investments would generate between about 770,000 and more than 1 million job-years (a "job-year" equals one person working in one job for a full year). For the entire twenty-year period (2011-2030), Total Value Added to GSP would be between $290 billion and $370 billion. This represents 15 to 19 percent of the current GSP. The added jobs for the entire period would be about 102,000 to 143,000 jobs annually. This quantitative benefit would be on top of the qualitative economic benefits that transportation improvements would provide for goods movement, particularly export goods.

Table 6-3. Long-term Economic Gains from Improved Mobility

FIRST TEN YEARS (2011-2020)	
Total GSP Impact	(in 2010 $ billions)
Low	$110
Medium	$120
High	$140
Annual Employ. Impact	(in jobs)
Low	77,000
Medium	92,000
High	108,000

Table 6-3. Long-term Economic Gains from Improved Mobility (cont'd)

FULL TWENTY YEARS (2021-2030)	
Total GSP Impact	(in 2010 $ billions)
Low	$290
Medium	$330
High	$370
Annual Employ. Impact	(in jobs)
Low	102,000
Medium	123,000
High	143,000

Short-Term Economic Stimulus Due to Project Construction

Project construction expenditures on labor, material, and equipment also would provide a short-term expansion in hiring and business activity during the first ten years. The direct expenditures in the transportation construction industries would indirectly generate an additional demand for goods, services, and labor throughout all support industries, and they would impact many parts of the state economy. Furthermore, as wages and salaries earned by laborers are spent on consumer goods and services, new economic activity would be generated, mostly in the retail/wholesale trade sector and various service sectors. The cumulative economic impact of project expenditures is typically measured by job and output multipliers.

Using standard input-output economic multipliers, we have provided a conservative and optimistic estimate of increased jobs and GSP due to project construction activity. The total construction cost of the projects proposed by the MPOs is estimated at about $125 billion[1]. The cumulative impact of project expenditures on the GSP is estimated between $163 billion and $188 billion. The total job impact is estimated at 1.88 million to 2.25 million job-years. Table 6-4 summarizes the estimates of the impacts to GSP and jobs:

[1] "Construction cost" is calculated at 75% of total project costs for system expansion and system management projects listed in Appendix B.

Table 6-4. Short-term Economic Impacts of Project Construction

Total Construction Cost	$125 billion
Total GSP Impact	
Low	$163 billion
High	$188 billion
Total Job Impact (job-years)	
Low	1.88 million
High	2.25 million

OTHER PERFORMANCE MEASURES WITH QUANTITATIVE COMPARISONS

Of the other ten selected performance measures that are listed in Table 6-2, we were able to obtain quantitative results that allow for meaningful comparisons among MPOs for seven of them. These results are reported in Tables 6-5A, 6-5B, and 6-5C.

Table 6-5A: Non-Economic Performance Measures - Base Year Data

CATEGORIES	MEASURES	SANDAG	SACOG	KERN	FRESNO	MCTC	TCAG	SBCAG	SJCOG	SCAG	AMBAG	MTC	SHASTA	MCAG	TMPO	BCAG	StanCOG	KCAG
Multimodal Travel Mobility	Change in average per-trip travel time (minutes):																	
	- All Trips	16.95	12.30	15.19	14.24	NA	NA	NA	NA	18.12	NA	15.10	14.5	NA	NA	9.3	18.4	14.95
	- Work Trips (or Peak)	27.19	18.80	16.21	18.97	NA	NA	16.40	NA	27.41	NA	NA	14.7	NA	NA	9.6	21.34	24.85
Climate and Energy Conservation	Weekday Vehicle Miles Traveled (VMT) Per Capita	25.5	22.7	21.0	19.7	25.5	21.1	19.9	20.9	21.4	21.7	20.8	26.4	22.3	27.9	16.0	18.5	18.1
Emissions Reductions	Weekday Per Capita Carbon Dioxide (lbs.)	26.0	23.0	14.3	16.1	24.5	16.2	20.2	20.5	21.4	23.1	26.0	23.6	16.4	15.8	15.5	NA	12.6
Air Quality / Public Health	Criteria pollutant emissions per capita[2]	0.078	0.150	0.268	0.133	0.193	0.116	0.161	0.118	0.074	0.008	0.095	NA	0.27	0.17	0.557	NA	NA
Multimodal Safety	Number of injuries and fatalities per capita from all collisions (including bicycle and pedestrian)	0.010	0.007	0.005	NA	NA	NA	NA	NA	0.010	NA	0.004	0.009	NA	NA	NA	0.02	NA
Pedestrian and Bicycle Mode Share	Percent of total trips per capita taken by biking or walking																	
	-All Trips	2.8%	7.5%	3.4%	NA	NA	0.7%	NA	NA	NA	NA	12.1%	3%	NA	16%	NA	1.0%	1.3%
	-Work Trips	1.7%	NA	NA	2.0%	NA	NA	6.1%	NA	4.5%	NA	NA	NA	NA	NA	NA	NA	NA
Transit Mode Share	Percent of total trips per capita taken by transit																	
	-All Trips	1.5%	1.2%	2.0%	NA	NA	5.9%	NA	2.0%	NA	NA	NA	NA	0.7%	1.0%	NA	1.0%	NA
	-Work Trips	6.4%	NA	NA	1.5%	NA	NA	1.2%	NA	4.1%	NA	10.5%	0.4%	NA	NA	NA	NA	0.1%

[1] Based on the EMFAC analysis of smog forming pollutants (Reactive Organic Gas [ROG] and Oxides of Nitrogen [Nox] emissions)

Table 6-5B: Non-Economic Performance Measures - 2020 Data

CATEGORIES	MEASURES	SANDAG	SACOG	KERN	FRESNO	MCTC	TCAG	SBCAG	SJCOG	SCAG	AMBAG	MTC (2020 and 2025)	SHASTA (2030)	MCAG	TMPO	BCAG	StanCOG	KCAG
Multimodal Travel Mobility	Change in average per-trip travel time (minutes):																	
	- All Trips	17.98	12.50	15.26	14.43	NA	NA	NA	NA	18.42		14.80	15.3	NA	NA	NA	16.6	13.76
	- Work Trips (or Peak)	29.85	19.30	16.41	19.23	NA	NA	18.90	NA	26.67		NA	15.6	NA	NA	NA	20.04	22.28
Climate and Energy Conservation	Weekday Vehicle Miles Traveled (VMT) Per Capita	25.48	23.54	21.59	20.17	26.54	20.67	21.38	21.38	20.71	27.39	20.53	26.8	25.3	36.0	16.47	19.0	17.7
Emissions Reductions	Weekday Per Capita Carbon Dioxide (lbs.)	23.7	22.5	14.2	15.7	24.8	15.8	21.9	20.2	19.7	28.2	20.9	26.2	18.4	14.7	15.6	NA	12.2
Air Quality / Public Health	Criteria pollutant emissions per capita[2]	0.042	0.050	0.118	0.060	0.085	0.064	0.046	0.053	0.017	0.005	0.025	NA	0.09	0.063	0.204	NA	NA
																		NA
Multimodal Safety	Number of injuries and fatalities per capita from all collisions (including bicycle and pedestrian)	0.006		0.005	NA	NA	NA	NA	NA	0.010	NA	0.004	NA	NA	NA	NA	0.02	NA
Pedestrian and Bicycle Mode Share	Percent of total trips per capita taken by biking or walking																	
	-All Trips	2.7%	7.9%	3.0%	NA	NA	0.7%	NA	NA	NA	NA	13.2%	NA	NA	18%	NA	1%	1.30%
	-Work Trips	1.6%	NA	NA	2.2%	NA	NA	6.1%	NA	5.1%	NA	NA	NA	NA	NA	NA	NA	NA
Transit Mode Share	Percent of total trips per capita taken by transit																	
	-All Trips	1.7%	1.6%	2.0%	NA	NA	6.0%	NA	2.0%	NA	NA	NA	NA	NA	3.0%	NA	1.0%	NA
	-Work Trips	7.1%	NA	NA	1.6%	NA	NA	1.3%	NA	4.8%	NA	12.6%	0.3%	NA	NA	NA	NA	0.1%

[2] Based on the EMFAC analysis of smog forming pollutants (Reactive Organic Gas [ROG] and Oxides of Nitrogen [Nox] emissions)

Table 6-5C: Non-Economic Performance Measures - Results (2020 vs. Base Year)

CATEGORIES	MEASURES	SANDAG	SACOG	KERN	FRESNO	MCTC	TCAG	SBCAG	SJCOG	SCAG	AMBAG	MTC	SHASTA	MCAG	TMPO	BCAG	StanCOG	KCAG
Multimodal Travel Mobility	Change in average per-trip travel time: (minutes)																	
	- All Trips	+1.03	+0.20	+0.07	+0.19	NA	NA	NA	NA	+0.31	NA	-0.30	+0.80	NA	NA	NA	-1.80	-1.19
	- Work Trips (or Peak)	+2.66	+0.5	+0.20	+0.26	NA	NA	+2.50	NA	-0.74	NA	NA	+0.90	NA	NA	NA	-1.30	-2.57
Climate and Energy Conservation	Weekday Vehicle Miles Traveled (VMT) Per Capita	-0.02	0.83	0.55	0.46	1.01	-0.43	1.47	0.45	-0.68	5.67	-0.23	0.43	3.00	8.04	0.43	0.51	-0.35
Emissions Reductions	Weekday Per Capita Carbon Dioxide (lbs.)	-2.3	-0.5	-0.1	-0.3	+0.3	-0.1	+1.7	-0.3	-1.8	+5.1	-5.1	+2.6	+2.0	-1.1	+0.1	NA	-0.4
Air Quality / Public Health	Criteria pollutant emissions per capita[1]	-0.036	-0.100	-0.151	-0.073	-0.108	-0.059	-0.115	-0.065	-0.056	-0.003	-0.070	NA	-0.180	-0.107	-0.353	NA	NA
Multimodal Safety	Number of injuries and fatalities per capita from all collisions (including bicycle and pedestrian)	-0.004	-0.007	0.000	NA	NA	NA	NA	NA	0.000	NA	0.000	NA	NA	NA	NA	0.000	NA
Pedestrian and Bicycle Mode Share	Percent of total trips per capita taken by biking or walking																	
	-All Trips	-0.1%	+0.4%	-0.4%	NA	NA	0.0%	NA	NA	NA	NA	+1.1%	NA	NA	+2.0%	NA	0.0%	0.0%
	-Work Trips	-0.1%	NA	NA	+0.2%	NA	NA	0.0%	NA	+0.6%	NA	NA	NA	NA	NA	NA	NA	NA
Transit Mode Share	Percent of total trips per capita taken by transit																	
	-All Trips	+0.2%	+0.4%	0.0%	NA	NA	+0.1%	NA	0.0%	NA	NA	NA	NA	NA	+2.0%	NA	0.0%	NA
	-Work Trips	+0.7%	NA	NA	+0.1%	NA	NA	+0.1%	NA	+0.7%	NA	+2.1%	-0.1%	NA	NA	NA	NA	0.0%

[1] Based on the EMFAC analysis of smog forming pollutants (Reactive Organic Gas [ROG] and Oxides of Nitrogen [Nox] emissions)

Change in Average Travel Time

The category of "multimodal travel mobility" was evaluated by looking at the change in average per-trip travel time for all trips, from the base year to 2020. The results vary, both in direction and magnitude from region to region. In most cases, there would be a slight increase in travel time (in most cases less than one minute). Three of the regions reported decreases in travel time. It should be noted that in most cases projected increases in average travel time are occurring within regions that are expected to experience significant population growth during the study period. Further research should be done to develop refined performance measures that will account for differences in population growth rates which make it more or less difficult for a region to reduce average travel times.

Vehicle Miles Traveled

The category of "climate and energy conservation" was evaluated by looking at changes in per-capita VMT, from the base year to 2020. Again, the results vary from region to region, with five regions showing slight decreases in per-capita VMT and most showing increases. These results, which were included in the "target setting analysis" reports submitted to the California Air Resources Board by MPOs in 2010, should continue to be monitored and evaluated as RTPs are updated to incorporate new transportation and land use strategies in response to SB 375.

Greenhouse Gas Emissions

The category of "emissions reductions" was evaluated by looking at changes in per-capita GHG emissions, from the base year to 2020. Ten regions reported reductions in per-capita GHG emissions. Six regions reported increases. Again, these results should continue to be monitored and evaluated as RTPs are updated to incorporate new transportation and land use strategies in response to SB 375.

Criteria Pollutant Emissions

The categories of "air quality" and "public health" were evaluated by looking at changes in criteria pollutants, per capita, from the base year to 2020. In this case, 14 of the regions reported reductions in per-capita pollutants. Two regions reported no change.

Multimodal Safety

The category of "multimodal safety" was evaluated by looking at changes in the number of injuries and fatalities due to all collisions per capita, from the base year to 2020. Of the six MPOs that reported on this measure, two of them reported reductions in per-capita rates. The other four regions reported no change.

Pedestrian and Bicycle Mode Share

The category of "pedestrian and bicycle mode share" is evaluated by looking at the change in the percentage of total trips (or in some cases, just work trips) that are taken by walking or bicycling. Of the 14 MPOs reporting results in this category, 5 reported increases in mode share, 2 reported reductions, and 10 reported no change.

Transit Mode Share

The category of "transit mode share" is evaluated by looking at the change in the percentage of total trips (or in some cases just work trips) taken by public transit. Of the 14 MPOs reporting results in this category, 8 reported increases in mode share, 1 reported a reduction, and 5 reported no change.

Other Performance Measures without Quantitative Comparisons

Of the 12 selected measures, there were three measures for which comparable results could not be obtained from adopted Regional Transportation Plans (RTPs). The following is a brief discussion of each of these categories.

Asset Condition

Most RTPs do not include a performance measure that addresses changes in the condition of existing transportation facilities in relation to accepted standards of good repair. This does not mean that the condition of existing transportation assets is not an important consideration in regional transportation planning. Instead, it reflects the complexity of measuring the condition of various types of transportation facilities in ways that are comparable across the state and across modes. However, Chapter 3 of this report lays the groundwork for identifying standards for "state of good repair" in several of the transportation modes that are evaluated. Continued research is needed in this area.

Equitable Distribution of Access and Mobility

How equitably the access and mobility benefits of long-range transportation plans are distributed continues to be an important focus of federal and state law. The "State RTP Guidelines" prepared by the CTC provide guidance to MPOs with regard to how these issues should be addressed in their RTPs. However, there is not yet a single metric that can be used to compare results in this category across the 18 MPOs. This is another area where more research is needed, as discussed in the report of the Regional Targets Advisory Committee to the State Air Resources Board.

Support for Sustainable Growth

How well existing RTPs lead to increases in the percentage of housing and jobs situated near high-quality public transit is another measure for which comparable results could not be provided for this report. SB 375 calls for greater attention to be paid to this measure, and it provides some common definitions that can be used in the next round of RTP updates. These will help MPOs evaluate how well new transit investments, combined with policies that promote new development near existing and planned transit facilities, are leading to greater accessibility to transit for residents and workers.

Summary

Overall, the results of this initial performance analysis indicate that the transportation system investments identified in the ten-year needs assessment would have significant positive impacts for the state. The cumulative economic benefits, both in terms of growth in jobs and growth in the Gross State Product, would be significant. In addition, these investments would appear to support certain non-economic benefits, such as reductions in criteria air pollutants and increases in transit mode share. In addition, as discussed previously, funding of the system preservation projects and programs described in this report would lead to significant improvements in asset conditions. These would lead to greater long-term efficiency and lower ongoing maintenance costs for transportation systems.

Overall, the results of this initial performance analysis indicate that the transportation system investments identified in the ten-year needs assessment would have significant positive impacts for the state.

At the same time, there are several possible categories of performance measures for which results are mixed, or for which data is not currently available. This may be explained in part by the fact that all of the existing RTPs were adopted prior to the enactment of SB 375, which has placed a greater emphasis on the relationship between transportation planning and certain performance outcomes such as GHG emission reductions.

In addition, this report also highlights the need for additional research in the area of performance analysis, as well as improvements in standards for reporting such information through updates to regional transportation plans and other planning and programming documents.

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APPENDICES

Appendix A: Glossary

Appendix B: System Expansion and System Management Project Listings

Appendix C: California Seaport Mobility and Capacity Projects

Appendix D: Regional Maps

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APPENDIX A: GLOSSARY

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Glossary of Terms, Abbreviations, and Acronyms

ADA
Americans with Disabilities Act: The federal civil rights legislation for disabled people that was passed in 1990; it requires public transportation systems to be more fully accessible; includes the provision of paratransit service.

ADT
Average Daily Traffic: The average number of vehicles that travel on a given roadway in a 24-hour period on a weekday.

AHS
Automated Highway System: Roadways on which vehicles are instrumented to operate automatically with minimal operator input. AHS technologies generally consist of advanced guidance and collision avoidance systems that are designed to eliminate accidents and improve the carrying capacity of the roadway from 2,200 vehicles per lane per hour to about 6,000 vehicles per lane per hour.

Air Cargo
Revenue-producing items in domestic or international air commerce, composed of freight, express, and mail, but excluding passenger baggage.

Air Carrier
An aviation operator that provides regular round-trips per week between two or more points, and publishes flight schedules that specify the times, days of the week, and places between which such flights are performed; or that transports mail by air pursuant to a contract with the U.S. Postal Service.

Alternative Transportation Fuels
Low-polluting fuels that are used to propel a vehicle, in place of petroleum-based gasoline or diesel fuels. Examples include biodiesel, electricity, ethanol, propane, compressed natural gas, and liquid natural gas.

Amtrak
A federal governmental agency that provides intercity railroad passenger service. Amtrak also provides commuter rail passenger service by contract.

Annual Service Miles
The number of miles that all transit vehicles travel each year in scheduled transit service operations, or when carrying passengers in door-to-door transit service.

Apportionment
A federal budgetary term that refers to a statutorily prescribed division of assigned funds. It is based on formulas prescribed by law.

Arterial
Streets with traffic lights that serve primarily to carry traffic through an area as quickly and efficiently as possible.

Arterial Rapid Transit
Provides rapid and frequent transit service along arterials that use signal priority and queue jumper lanes at major intersections.

Arterial Traffic Management System
A hardware and software system that enables local agencies to coordinate the timing of traffic signals across jurisdictional boundaries; optimize the flow of traffic on regionally significant arterials; manage traffic caused by special events and major accidents; and coordinate arterial signals with freeway ramps, transit service, and rail grade-crossings.

Auxiliary Lane
An additional freeway lane between adjacent interchanges that improves the weaving conflicts between exiting and entering vehicles.

AVL
Automated Vehicle Location: A transportation device that uses the coordinates from earth-orbit satellites to determine the precise location of a vehicle on the earth's surface. AVL is used to manage taxi, bus, and commercial vehicle fleet operations.

Bikeway Classifications
As defined by the Manual on Uniform Traffic Control Devices:

- Class I Bike Path: A paved shared-use path within an exclusive right-of-way;
- Class II Bike Lane: Signed and striped lanes within a street right-of-way;
- Class III Bike Route: Preferred routes on existing streets identified by signs only;

Shared Lane Marking or "Sharrow:" Provides positional guidance to bicyclists on roadways that are too narrow to be striped with bicycle lanes and to alert motorists of the location a cyclist may occupy in the roadway.

Bus Rapid Transit
Corridor-level services providing fast and frequent transit services that are designed to take advantage of freeway improvements such as High-Occupancy Vehicle (HOV) and Managed Lanes in order to serve longer distance regional trip-making.

Caltrans
California Department of Transportation: The state agency responsible for the design, construction, operation, and maintenance of the state highway system. The state system includes interstate freeways and state highways.

CARB
California Air Resources Board: The state agency responsible for adopting state air quality standards, establishing emission standards for new cars sold in the state, overseeing activities of regional and local air pollution control agencies, and setting regional targets for reducing greenhouse gas emissions.

Carpool
An arrangement in which two or more people share the use of a privately-owned automobile to travel together to and from pre-arranged destinations — typically between home and work or home and school.

Carsharing
Organized short-term auto rental, often located in downtown areas near public transit stops as well as near residential communities and employment centers. Carsharing organizations operate fleets of rental vehicles that are available for short trips by members who pay a subscription fee, plus a per-trip charge.

CCI
Construction Cost Index: A measurement of the inflation rate in the cost of major construction projects.

CHP
California Highway Patrol: The state law enforcement agency responsible for highway safety.

CHSRA
California High-Speed Rail Authority: The California High-Speed Rail Authority was created by the California Legislature in 1996 to develop a plan for the construction, operation, and financing of a statewide, intercity high-speed passenger rail system.

CMIA
Corridor Mobility Improvement Account: A $4.5 billion congestion relief component of Proposition 1B, a measure approved by voters in 2006 that provides nearly $19.9 billion in infrastructure bonds.

CMAQ
Congestion Mitigation and Air Quality Program: A category of funds contained in SAFETEA-LU for projects and activities that reduce congestion and improve air quality in regions not yet attaining federal air quality standards.

CNG
Compressed Natural Gas: A clean-burning alternative fuel for vehicles.

COG
Council of Governments: A voluntary organization of local governments that strives for comprehensive regional planning. SANDAG is the COG in the San Diego region.

Commuter Rail
Conventional rail passenger service within a metropolitan area. Service primarily is in the morning (home-to-work) and afternoon (work-to-home) travel periods.

Conformity
A demonstration of whether a federally-supported activity is consistent with the SIP — per Section 176 (c) of the Clean Air Act. Transportation conformity applies to plans, programs, and projects approved or funded by the Federal Highway Administration or the Federal Transit Administration.

Congestion
Congestion is usually defined as travel time or delay in excess of what is normally experienced under free-flow traffic conditions. Congestion is typically accompanied by lower speeds, stop-and-go travel conditions, or queuing, such as behind ramp meters or heavily-used intersections.

Corridor
A broad geographical band that follows a general directional flow connecting major trip origins and destinations. A corridor may contain a number of streets, highways, and transit route alignments.

CPI
Consumer Price Index: Developed by the Bureau of Labor Statistics of the U.S. Department of Labor to provide a measurement of the inflation rate in the general economy of a given metropolitan area.

CTC
California Transportation Commission: A state agency that sets state spending priorities for many state and federally funded highway and transit projects and allocates funds to those projects. CTC members are appointed by the governor.

CVO
Commercial Vehicle Operations: The segment of the surface transportation system involved in the movement of commercial goods or freight. Commercial vehicles are generally trucks and rail cars. The management of these fleets and the movement of freight, including its movement through ports of entry, intermodal transfer facilities, and other services is referred to as commercial vehicle operations.

Demand Responsive Service
Transit service that is provided in response to a pre-ordered or telephone reservation.

Development Impact Fee
A fee charged to private developers, usually on a per-dwelling-unit or per-square-foot basis, to help pay for infrastructure improvements necessitated as a result of the development.

DOT
Department of Transportation: At the federal level, the cabinet agency headed by the Secretary of Transportation that is responsible for highways, transit, aviation, and ports. The DOT includes the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), the Federal Aviation Administration (FAA), and other agencies. The state DOT is Caltrans.

Drive Alone
See SOV.

EIR
Environmental Impact Report: A detailed statement prepared under the California Environmental Quality Act (CEQA) that describes and analyzes the significant environmental effects of a project and discusses ways to mitigate or avoid the effects.

Environmental Justice
The fair treatment of people of all races, cultures, and incomes during the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies.

EPA
See U.S. EPA.

E-work
See Telework.

FAA
Federal Aviation Administration: The federal agency that regulates the use of airspace and is responsible for evaluating and disseminating information about hazards and obstructions to aviation.

Farebox Recovery Ratio
The proportion of operating expenses covered by passenger fares. The ratio divides the farebox revenue by the total operating expenses.

Farebox Revenue
The value of cash, tickets, and pass receipts given by passengers for payment for rides on public transit.

Fare Structure
The varying fees charged to use transit, normally differing by the age of the transit rider, single versus multiple transit trips, the type of service (Trolley, express bus, etc.), and, for some types of services, the length of the trip.

Ferry
Transit service provided by boat.

FHWA
Federal Highway Administration: The federal agency responsible for the administration of federal highway funds, and issuing policy and procedures for implementing federal legislative directives. FHWA is a component of the federal DOT.

Fiscal Year
The 12-month period established for budgeting purposes. In California, the commonly accepted fiscal year for governmental purposes begins on July 1 and ends on June 30.

Fixed Route Service
Service provided on a regular, fixed-schedule basis along a specific route, with vehicles stopping to pick up and deliver passengers to specific locations.

Freeway
A divided highway with limited access and grade-separated junctions, and without traffic lights or stop signs.

FTA
Federal Transit Administration: The federal agency responsible for administering federal transit funds. FTA is part of the federal DOT.

Gas Tax
The tax applied to each gallon of fuel sold. Currently, the federal government has imposed a per-gallon tax of 18.4 cents, and the state has imposed a per-gallon excise tax of 35.3 cents per gallon.

GHG Emissions
Greenhouse Gas Emissions: Gases that influence global climate change. They include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

GIS
Geographic Information System.

Grade Separation
A physical and/or structural separation between intersecting roads and/or railway tracks. One road or railway track typically travels over or under the other via an overpass, tunnel, or other structure.

HCM
Highway Capacity Manual: A resource for generating technical information that is used by transportation planners, designers, and operators. The materials contained in the HCM represent a collection of state of the art techniques for estimating level of service for many transportation facilities and modes.

Heavy Rail
Railroad services that operate in a mixed-user environment on conventional railroad tracks. Heavy rail services include freight trains, Amtrak, Commuter Rail, and most conventional rail transit systems.

Highway
A general term usually referring to a state or federally-designated urban or rural route, designed to accommodate longer trips in the region.

HOT Lane
High-Occupancy Toll Lane: HOT lanes are limited access lanes in which carpools, vanpools, and buses travel for free, while other vehicles gain access by paying a fee.

HOV
High-Occupancy Vehicle: A vehicle that carries more than one occupant. Examples include carpools, vanpools, shuttles, and buses.

HOV Lane
High-Occupancy Vehicle Lane: An exclusive road or traffic lane that typically has a higher operating speed and lower traffic volumes than a general purpose or mixed-flow lane. In California, vehicles that typically can use HOV lanes include carpools, vanpools, buses, other multi-passenger vehicles, and motorcycles and emergency vehicles.

HSR
High-Speed Rail: Railroad passenger service that, as defined by California state law, operates at maximum speeds of more than 200 miles per hour. Because of the speed, high-speed rail normally operates on intercity (longer) routes.

ICM
Integrated Corridor Management: A collaborative, cooperative, and coordinated system in which corridor partners work together to improve mobility and safety across modes and networks for people and goods.

Incident
An incident may be a traffic collision, stalled vehicle, load spillage, or other event that affects one or more lanes of traffic.

Integrated Performance Management Systems Network
Integrated Performance Management Systems Network: This network will connect the region's local transportation management centers, and will enable agencies to cooperatively manage the overall performance of the local and regional transportation systems.

Intercity Rail
Railroad passenger service which primarily serves longer trips, such as those between major cities or regions.

Intermodal
Passenger or freight transportation services which involve or use more than one type of transportation facility (or mode). Aviation, automobile, rail, and transit are travel modes.

ITS
Intelligent Transportation Systems: A general classification of transportation technologies, management tools, and services made possible through advances in computer and communication technologies. ITS is used to make transportation systems safer and more efficient.

Light Rail
A passenger transportation system of self-propelled vehicles that operate over steel rails located in the street, on an aerial structure, or on a separated right-of-way.

LOS
Level of Service: A qualitative measure describing operational conditions within a traffic stream and motorists' perceptions of those conditions. LOS ratings typically range from LOS A, which represents free-flow conditions, to LOS F, which is characterized by heavy congestion, stop-and-go traffic, and long queues forming behind breakdown points.

LOSSAN
Los Angeles-San Diego-San Luis Obispo (LOSSAN): The LOSSAN Rail Corridor Agency coordinates planning and programming on the coastal rail line. SANDAG, MTS, and NCTD are voting members of LOSSAN, along with regional transportation planning agencies in Orange, Los Angeles, Ventura, Santa Barbara, and San Luis Obispo counties. LOSSAN sets priorities for improvements in the corridor that will increase the capacity of the rail line and the reliability of service.

LRT
Light Rail Transit: A type of transit vehicle and service that uses steel wheels and operates over railroad tracks. LRT systems generally serve stations averaging one mile apart, are not remotely controlled, and can operate in a separated right-of-way or on public streets.

Managed Lanes (or Express Lanes)
These lanes provide access for carpools, vanpools, bus, and solo drivers who pay a fee to use the lanes. The lanes can be barrier-separated and some lanes can be reversed to go with the flow of traffic.

Mode
One of the various forms of transportation, including automobile, transit, bicycle, and walking. Intermodal refers to the connection between modes; multimodal refers to the availability and/or use of multiple transportation modes.

Mode Split or Mode Share
The percentage of trips that use each of the various travel modes.

MPO
Metropolitan Planning Organization: A federally-designated agency that is responsible for regional transportation planning in each metropolitan area.

NAFTA
North American Free Trade Agreement: A formal agreement between Canada, Mexico, and the United States to promote ways to improve and increase free trade among the three countries.

Non-Attainment Area
A geographic area identified by the U.S. EPA and/or the CARB as not meeting either the national or California Ambient Air Quality Standards for a given pollutant.

Off-Peak Period
The time of day when the lowest concentration of vehicles or transit riders are on the road or on another transit facility. These times are generally before 6 a.m., between 9 a.m. and 3 p.m., and after 6 p.m.

Paratransit
A specialized, door-to-door transport service for people with disabilities who are unable to use standard bus or commuter rail services.

Park-and-Ride
A travel option in which commuters park their personal vehicles in a public lot or other location, and continue their trip via carpool, vanpool, or transit.

Park-and-Ride Lot
A facility where individuals can meet to utilize carpools, vanpools, and public transit to continue traveling to their destinations.

Passenger Miles
The total number of passengers carried by a transit system, multiplied by the number of miles each passenger travels. Passenger miles are normally measured on a daily or annual basis.

Peak Period
The time of day when the highest concentrations of vehicles or transit riders are on the road or on another transit facility. The morning peak period is generally considered to be from 6 to 9 a.m.; the afternoon peak period is from 3 to 6 p.m.

PeMS
Performance Monitoring System: The PeMS program uses urban freeway data collected through freeway loop detectors to provide current, ongoing data on freeway volumes and speeds that can be displayed graphically and exported to other monitoring applications.

Performance Measures
Objective, quantifiable measures used to evaluate the performance of the transportation system, and to determine how well planned improvements to the system are achieving established objectives.

Person Trip
Any person's one-way travel to any destination for any purpose. More specifically, a trip is the one-way movement from an origin to a destination, whereby each trip has two trip ends.

Positive Train Control (PTC)
PTC is a state-of-the-art train signaling and communication system that improves the efficiency of operations and enhances safety.

POE
Port of Entry: Trans-border facilities that process conveyances, passengers, and goods entering and exiting the United States.

PSR
Project Study Report: A preliminary engineering report that documents agreements on the scope, a set of reasonable and feasible alternatives, the schedule, and the estimated cost of a project so that the project can be included in a future State Transportation Improvement Program (STIP).

Public Transit
See Public Transportation.

Public Transportation
Travel by bus, rail, or other vehicle, either publicly or privately owned, that provides general or specialized service on a regular or continuing basis.

Ramp Metering
Electronic traffic control devices located at freeway access points to meter the entry of vehicles onto the freeway. The goal is to help optimize the movement of persons and vehicles.

Ridership
The number of transit users, usually reported as a yearly total or as the average for a normal workday.

Ridesharing
A mode of travel in which at least two individuals share the same vehicle to get to their destination. Rideshare vehicles include private automobiles, privately owned and operated vans and buses, as well as public transportation.

Route Miles
The length of a transit route or service, multiplied by the number of trips made by transit vehicles or trains each day.

ROW
Right-of-Way: The land required for the construction and/or operation of transportation infrastructure.

RTIP
Regional Transportation Improvement Program (RTIP): A five-year listing of major highway and transit projects including project costs, funding sources, and development schedules. Compiled from priority lists submitted by local jurisdictions and transportation agencies.

RTMS
Regional Transit Management System: A sophisticated management tool used to monitor and report on the performance of the transit system in real time, used for more than 50 percent of the region's fixed-route services.

RTP
Regional Transportation Plan: A minimum 20-year plan that is required by state and federal law to guide the development of the region's transportation system.

RTPA
Regional Transportation Planning Agency: A state-designated agency responsible for preparing the RTP and the RTIP, and for administering state transportation funds.

State Highway
A state-designated roadway. May be urban or rural.

Safe Routes to School
A state and federal program that funds education, encouragement campaigns, and infrastructure improvements to help decrease traffic congestion around schools, and to make the journey to school on foot or bike more feasible for children.

SAFETEA-LU
Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users: Federal legislation signed into law on August 10, 2005 authorizing $244.1 billion for federal surface transportation programs for highways, highway safety, and transit for the five-year period between 2005 and 2009. At the time of this writing, Congress had not yet passed a re-authorization of a multi-year transportation bill. In its place, Congress has approved a series of extensions, known as Continuing Resolutions, to keep federal funds flowing at the last approved annual funding level, to SAFETEA-LU formula programs.

SCS
Sustainable Communities Strategy: A new element of the RTP, as required by SB 375, that demonstrates how development patterns and the transportation network, policies, and programs can work together to achieve the state's targets for reducing greenhouse gas (GHG) emissions from cars and light trucks in a region.

SIP
State Implementation Plan: A document that shows the steps planned to meet federal air quality standards (outlined in the Clean Air Act). Each non-attainment area prepares an air quality improvement plan; those are combined to make up the statewide SIP.

SHOPP
State Highway Operation and Protection Program: Caltrans' three-year program to address traffic safety, roadway rehabilitation, roadside rehabilitation, or operations needs on the state highway system.

Smart Growth
A compact, efficient, and environmentally-sensitive pattern of development that provides people with additional travel, housing, and employment choices by focusing future growth away from rural areas and closer to existing and planned job centers and public facilities, while preserving open space and natural resources.

SOV
Single Occupant Vehicle: A vehicle with one occupant – the driver. Also referred to as a "drive alone."

STIP
State Transportation Improvement Program: A multi-year program of major transportation projects to be funded by the state. The CTC adopts the STIP every two years, based on projects proposed in RTIPs and from Caltrans.

STP
Surface Transportation Program: A federal program, originally established in the federal ISTEA legislation, that provides flexible funding allocated by regional agencies for a wide range of projects including highways, transit, local streets and roads, and bicycles.

TCM
Transportation Control Measure: A transportation strategy intended to reduce vehicle miles traveled (VMT) and to make VMT more efficient. TCMs include transportation system management (TSM) and transportation demand management (TDM) elements. Examples include carpooling, transit, and computer-optimized traffic signals.

TDA
Transportation Development Act: TDA funds are generated from a tax of one-quarter of one percent on all retail sales in each county, and they are used for transit, specialized transit for disabled people, and bicycle and pedestrian purposes.

TCRP
Transportation Congestion Relief Program.

TDM
Transportation Demand Management: Programs to reduce demand by automobiles on the transportation system, by promoting telecommuting, flextime, bicycling, walking, transit use, staggered work hours, and ridesharing.

Telework

Teleworkers or e-workers are employees who conduct some or all of their daily work activities from their home or from a remote site other than the normal work site, in order to avoid commuting during peak periods.

Transit
See Public Transportation.

Transit Management System
A field operations management system that enables improved transit route planning, scheduling, and performance monitoring.

Trip
See Person Trip and/or Vehicle Trip.

Trolley
The urban light rail transit service currently provided in the San Diego region: the San Diego Trolley.

TSM
Transportation System Management: Strategies that allow transportation systems to operate in a way that maximizes the number of people traveling in a corridor or facility. These strategies include traffic flow improvements, ramp metering, and park-and-ride lots.

U.S. DOT
United States Department of Transportation: The federal cabinet-level agency with responsibility for highways, mass transit, aviation, and ports and headed by the Secretary of Transportation. The DOT includes the Federal Highway Administration and the Federal Transit Administration, among other agencies.

EPA
Environmental Protection Agency: The federal agency charged with setting policy and guidelines, and carrying out legal mandates, for the protection of national interests in environmental resources.

Vanpool
A vehicle operating as a ridesharing arrangement, providing transportation to a group of individuals typically traveling directly between their homes and employment locations within the same geographic area.

V/C Ratio
Volume to Capacity Ratio: The volume of traffic divided by the capacity of a transportation facility. Traffic volume is defined as the number of vehicles passing (or proposed to pass) a point or section of roadway in a given time interval. Capacity is defined as the maximum number of vehicles that reasonably can be expected to traverse that point or section of roadway during the same time period under prevailing roadway, traffic, and control conditions.

Vehicle Trip
A single vehicle movement from the beginning of travel to its destination, in a vehicle that is motor-driven (e.g., automobiles, motorcycles, trucks, buses, and vans).

VMT
Vehicle Miles Traveled: The total number of miles traveled on all roadways by all vehicles. Reducing VMT can help ease traffic congestion and improve air quality.

Work Trip
Any "person" or "vehicle" trip whose purpose (on at least one trip end) involves work or work-related business.

APPENDIX B: SYSTEM EXPANSION AND SYSTEM MANAGEMENT PROJECT LISTINGS

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Appendix B: System Expansion and System Management Project Listings

State Highways: General Purpose Lanes

Jurisdiction	System Expansion/ System Management	Project/Route Name	Cost for Projects To Be Completed Between 2011-2020 (in thousands of dollars)		
			Expansion Portion	*System Management Portion*	*2011 - 2020 Total*
SANDAG*	Sys Expansion	SR -52, 11,241,56, 76, 94, 905, 125 / I-5,15,805	$2,167,500	$0	$2,167,500
AMBAG	Sys Expansion/ Mgmt	Hwy 1, 9, 25, 101; SR 1, 68, 156	$543,283	$0	$543,283
Modoc County	Sys Expansion/ Mgmt	SR 299, SR139	$3,203	$1,347	$4,550
FCOG	Sys Expansion	SR 180, SR 41, SR 168, SHOPP,	$284,102	$363	$284,465
SACOG	Sys Mgmt & Expansion	SR 70, 160, 99, 50, 20, 113, I-5	$1,108,940	$331,119	$1,440,059
Kern COG	Sys Expansion	Route: 14, 46 ,58 , 99, 178	$1,656,096	$0	$1,656,096
Madera CTC	Sys Expansion	SR 99,145,41	$184,686	$0	$184,686
MCAG	Sys Expansion	Highway: 99,59	$290,000	$0	$290,000
Lake County	Sys Expansion	Lake 29 Expressway	$50,000	$0	$50,000
SJCOG	Sys Expansion / Mgmt	I-205, SR-12, SR-4, SR-99, SR-	$1,906,977	$600	$1,907,577
TMPO	System Management	SR 89, SR 50, & SR 28	$0	$517,201	$517,201
MTC	Sys Exp/Mgmt/other ITS	I-880,238,580,80, HOV/HOT	$4,836,492	$1,974,346	$6,810,838
NCTC	Sys Expansion	SR 49,20,267	$234,607	$0	$234,607
SLOCOG	Sys Expansion/ Mgmt	Route: 46,1,58,101,41,227	$55,300	$41,610	$96,910
KCAG	Sys Expansion/ Mgmt	SR 41, 43, 198	$38,426	$105,255	$143,681
Inyo	Sys Expansion	US 395 and SR 14	$65,797	$0	$65,797
Shasta	Sys Expansion	I-5 widening	$63,100	$0	$63,100
ACTC	Sys Expansion/ Mgmt	SR 49,88,104,16,124	$165,000	$0	$165,000
EDCTC	Sys Expansion	US 50,49	$285,324	$0	$285,324
SCAG	Sys Expansion/ Mgmt	SR-11,47,57,61,91,215,86S,71,101	$25,057,070	$0	$25,057,070
SBCAG	Sys Expansion/ Mgmt	1, 101, 150, 192, 225, 166, 246	$1,024,145	$21,931	$1,046,076
HCAOG	Sys Expansion	Eureka Arcada Corridor & SR 96	$9,133	$0	$9,133
StanCOG	Sys Expansion	SR 132 and SR 99	$0	$0	$0
BCAG	Sys Expansion/ Mgmt	SR 70, 32 and 99	$9,925	$88,297	$98,222
TCAG	Sys Expansion	SR- 198,99,65,190,216,245	$611,109	$0	$611,109
Total			**$40,650,215**	**$3,082,069**	**$43,732,285**

State Highways: Managed Lanes, Toll Roads & HOV

Jurisdiction	System Expansion/ System Management	Project/Route Name	Cost for Projects To Be Completed Between 2011-2020 (in thousands of dollars)		
			Expansion Portion	*System Management Portion*	*2011 - 2020 Total*
SANDAG*	Sys Management	SR 52, I-5, I-15	$4,230,290	$0	$4,230,290
SACOG	Sys Expansion		$550,510	$0	$550,510
AMBAG	Sys Expansion	Hwy 1	$170,897	$0	$170,897
SJCOG	Sys Management	I-5, I-205	$0	$95,000	$95,000
MTC	Sys Mgmt / Expansion	I-880,238,580,80,680,HOV/HOT	$5,571,166	$557,708	$6,128,874
EDCTC	Sys Expansion	US 50	$54,813	$0	$54,813
SCAG	Sys Expansion/ Mgmt	I-5,215,15,405 / SR-14,57,73,91	$27,512,252	$0	$27,512,252
Total			**$38,089,928**	**$652,708**	**$38,742,636**

* SANDAG Transportation System Management (TSM) projects were combined under system expansion in the SANDAG 2030 RTP.

Appendix B: System Expansion and System Management Project Listings

Local Roads

Jurisdiction	System Expansion/ System Management	Project/Route Name	Cost for Projects To Be Completed Between 2011-2020 (in thousands of dollars)		
			Expansion Portion	*System Management Portion*	*2011 - 2020 Total*
SANDAG	Sys Expansion	Local Streets & Roads	$3,948,000		$3,948,000
AMBAG	Sys Mgmt & Sys Exp	Local Streets & Roads	$214,236	$152,305	$366,541
FCOG	Sys Expansion	SR 168, SR 99, Local Streets &	$976,556	$16,117	$992,673
SACOG	Sys Mgmt & Sys Exp	Local Streets & Roads	$3,116,259	$300,151	$3,416,409
Kern COG	Sys Mgmt & Sys Exp	Local Streets & Roads	$120,100	$0	$120,100
Madera CTC	Sys Expansion	Local Streets & Roads	$134,829	$0	$134,829
MCAG	Sys Expansion	Local Streets & Roads	$45,000	$0	$45,000
Trinity	Sys Expansion	SR-299, SR-3	$7,600	$0	$7,600
Tuolumne	Sys Expansion & Mgmt	Local Streets & Roads	$105,249	$0	$105,249
Lake County	Sys Expansion	Road widening, turn lanes	$18,430	$0	$18,430
SJCOG	Sys Expansion & Mgmt	Local Streets & Roads	$939,218	$127,168	$1,066,387
TMPO	System Management	Local Streets & Roads	$0	$68,865	$68,865
MTC	Sys Mgmt & Sys Exp/TDM	Local Streets & Roads	$1,843,941	$1,422,757	$3,266,698
NCTC	Sys Expansion	Signalization/Roads & Streets	$61,433	$0	$61,433
SLOCOG	Sys Expansion/Mgmt	Local Streets & Roads	$7,090	$35,970	$43,060
KCAG	Sys Expansion/Mgmt	Local Streets & Roads	$34,550	$29,039	$63,589
Shasta	Sys Expansion	Local Streets & Roads	$58,108	$0	$58,108
ACTC	Sys Mgmt/Safety	Intersection Improvements	$60,000	$80,000	$140,000
EDCTC	Sys Expansion/Mgmt	Local Streets & Roads	$440,221	$550	$440,771
Mooretown	Sys Mgmt	BIA Funding/ARRA	$0	$509	$509
SCAG	Sys Expansion	Local Streets & Roads	$8,483,250	$0	$8,483,250
SBCAG	Sys Expansion	Local Streets & Roads	$843,948	$4,329	$848,277
HCAOG	Sys Mgmt & Sys Exp	Local Streets & Roads	$10,759	$2,877	$13,636
StanCOG	Sys Expansion	Local Streets & Roads	$1,843,850	$0	$1,843,850
BCAG	Sys Mgmt & Sys Exp	Local Streets & Roads	$268,200	$54,161	$322,361
TCAG	Sys Expansion	Local Streets & Roads	$575,140	$0	$575,140
Total			**$24,155,968**	**$2,294,798**	**$26,450,765**

Public Transit

Jurisdiction	System Expansion/ System Management	Project/Route Name	Cost for Projects To Be Completed Between 2011-2020 (in thousands of dollars)		
			Expansion Portion	*System Management Portion*	*2011 - 2020 Total*
SANDAG	Sys Expansion	VariousTransit, Operating Subsidies, Rail Grade Separations, BRT, 350, 510, 610, 470, 611, 680. 628, 399, 570	$7,406,600	$0	$7,406,600
AMBAG	Sys Expansion/ Mgmt	Various Services & Expansions	$30,376	$25,207	$55,583
Modoc County	Sys Management: TDM	Transportation Center	$0	$357	$357
FCOG	Sys Expansion	Various	$27,672	$2,285	$29,957
SACOG	Sys Mgmt & Sys Exp	Various	$1,935,115	$155,688	$2,090,803
Kern COG	Sys Mgmt: TDM/ Sys Exp	New buses, transfer station	$28,500	$27,900	$56,400
Madera CTC	Sys Expansion	Park-and-ride, bus shelter,transit	$4,521	$0	$4,521
Tuolumne			$881	$0	$881
SJCOG	Sys Expansion/ Mgmt	Various	$28,958	$4,870	$33,828
MTC	Sys Exp & Mgmt/TDM/ITS	Various	$12,958,379	$843,874	$13,802,253
Lake County	Sys Mgmt	Bus Security, Electronic fare mgmt	$165	$0	$165
SLOCOG	Sys Mgmt	Costs	$86,973	$148,621	$235,594
TMPO	Sys Expansion/ Mgmt	Various	$24,824	$18,431	$43,255
Shasta	Sys Expansion	Tansit Capital/Improvements	$13,821	$0	$13,821
ACTC	Sys Mgmt/Safety	Various Services & Expansions	$1,500	$2,500	$4,000
EDCTC	Sys Expansion	Various Services & Expansions	$7,239	$0	$7,239
SCAG	Sys Expansion/ Mgmt	Various Services & Expansions	$7,493,780	$0	$7,493,780
SBCAG	Sys Expansion/ Mgmt	Various Services & Expansions	$603,506	$7,197	$610,703
HCAOG	Sys Expansion	Vehicle Acquisition	$425	$0	$425
StanCOG	Sys Expansion	Various	$209,112	$0	$209,112
BCAG	Sys Expansion/ Mgmt	Various	$0	$33,378	$33,378
TCAG	Sys Expansion	Bus purchase/ Infrastructure Improve	$41,451	$0	$41,451
Total			**$30,903,798**	**$1,270,308**	**$32,174,106**

Appendix B: System Expansion and System Management Project Listings

Intercity Passenger Rail

Jurisdiction	System Expansion/ System Management	Project/Route Name	Cost for Projects To Be Completed Between 2011-2020 (in thousands of dollars)		
			Expansion Portion	*System Management Portion*	*2011 - 2020 Total*
SANDAG	Sys Expansion	Coastal Rail / Tunnel, 398	$438,700	$0	$438,700
AMBAG	Sys Expansion	Various	$157,842	$5,350	$163,192
Caltrans	Sys Expansion	Station Improvements/ multiple	$4,918,890	$0	$4,918,890
MTC	Sys Exp & Mgmt	Right of Way, 3434 resolution	$286,071	$88,695	$374,766
SBCAG	Sys Expansion	Staion Rehabilitation/Improvements	$41,142	$0	$41,142
SCAG	Sys Expansion	Metrolink, 91 line	$301,220	$0	$301,220
Total			**$6,143,864**	**$94,045**	**$6,237,909**

Freight Rail

Jurisdiction	System Expansion/ System Management	Project/Route Name	Cost for Projects To Be Completed Between 2011-2020 (in thousands of dollars)		
			Expansion Portion	*System Management Portion*	*2011 - 2020 Total*
Kern COG	Sys Mgmt/ Sys Exp:ITS	Intermodal rail facility/double track sections	$141,700	$0	$141,700
AMBAG	System Expansion	Freight building rehabilitation	$1,000	$0	$1,000
MTC	Sys Mgmt	Grade separation/overcrossing	$0	$104,732	$104,732
SCAG	Sys Mgmt/ Sys Exp	Grade separation,ports,rail program	$19,245,555	$143,000	$19,388,555
KCAG	System Expansion	BNSF Rail Line	$700	$0	$700
TCAG	Sys Mgmt/ Sys Exp	Rail Improvements	$25,000	$0	$25,000
Caltrans Seaports Freight Rail	System	Various rail improvements	$1,604,160	$139,600	$1,743,760
Caltrans Freight Planning Branch	Sys Expansion	Various rail improvements	$905,902	$0	$905,902
Total			**$21,924,017**	**$387,332**	**$22,311,349**

Seaports

Jurisdiction	System Expansion/ System Management	Project/Route Name	Cost for Projects To Be Completed Between 2011-2020 (in thousands of dollars)		
			Expansion Portion	*System Management Portion*	*2011 - 2020 Total*
Caltrans Freight Planning Branch	Sys Mgmt/ Sys Exp	Various seaport improvements	$7,097,466	$402,550	$7,500,016
Total			**$7,097,466**	**$402,550**	**$7,500,016**

Airports

Jurisdiction	System Expansion/ System Management	Project/Route Name	Cost for Projects To Be Completed Between 2011-2020 (in thousands of dollars)		
			Expansion Portion	*System Management Portion*	*2011 - 2020 Total*
MTC	System Expansion/ Sys Mgmt	Link airport, automated Guideway transit (AGT)	$967,000	$10,000	$977,000
Caltrans Aeronautics	System Expansion/ Sys Mgmt	Infrastructure, safety and modernization upgrades	$3,568,146	$942,189	$4,510,335
Tuolumne			$0	$0	$0
Trinity	Sys Mgmt	Automated Observation Station	$0	$300	$300
AMBAG	System Expansion/ Sys Mgmt	Various	$10,301	$1,403	$11,704
EDCTC	Sys Expansion	Various Extensions/ Updates	$8,343	$0	$8,343
Total			**$4,553,791**	**$953,892**	**$5,507,683**

Appendix B: System Expansion and System Management Project Listings

Land Ports

Jurisdiction	System Expansion/ System Management	Project/Route Name	Cost for Projects To Be Completed Between 2011-2020 (in thousands of dollars)		
			Expansion Portion	*System Management Portion*	*2011 - 2020 Total*
MTC	Sys Mgmt	Truck Parking Facility	$5,000	$0	$5,000
SANDAG	Sys Expansion	San Ysidro and Otay Mesa East POE	$28,798	$0	$28,798
Total			**$33,798**	**$0**	**$33,798**

Major Intermodal Facilities

Jurisdiction	System Expansion/ System Management	Project/Route Name	Cost for Projects To Be Completed Between 2011-2020 (in thousands of dollars)		
			Expansion Portion	*System Management Portion*	*2011 - 2020 Total*
SANDAG	Sys Expansion	San Ysidro Int Freight Facility / South Line Rail	$135,672	$0	$135,672
SACOG	Sys Expansion	Amtrak Depot & Trans Terminal	$525,785	$0	$525,785
MTC	Sys Expansion	Various Construction	$4,748,872	$0	$4,748,872
SBCAG	Sys Expansion	Transit Hub/ Transfer Center	$41,142	$0	$37,170
SCAG	Sys Expansion	Various Construction	$495,406	0	$495,406
Total			**$5,946,876**	**$0**	**$5,946,876**

Bicycle and Pedestrian Projects

Jurisdiction	System Expansion/ System Management	Project/Route Name	Cost for Projects To Be Completed Between 2011-2020 (in thousands of dollars)		
			Expansion Portion	*System Management Portion*	*2011 - 2020 Total*
SANDAG	Sys Expansion	Bicycle/Pedestrian	$412,000	$0	$412,000
AMBAG	Sys Expansion & Mgmt	Bicycle/Pedestrian	$55,642	$0	$55,642
FCOG	Sys Expansion	Bicycle/Pedestrian	$31,487	$0	$31,487
SACOG	Sys Expansion & Mgmt	Bicycle/Pedestrian	$180,330	$75,008	$255,338
Kern COG	Sys Expansion	Bicycle/Pedestrian	$18,750	$0	$18,750
Madera CTC	Sys Expansion	Bicycle/Pedestrian	$3,070	$0	$3,070
MCAG	Sys Expansion	Bicycle/Pedestrian	$11,000	$0	$11,000
SJCOG	SyS Expansion	Bicycle/Pedestrian	$158,371	$0	$158,371
Tuolumne			$0	$0	$0
Trinity	Sys Expansion	Bicycle/Pedestrian	$8,047	$0	$8,047
Lake County	Sys Expansion	Bicycle/Pedestrian	$11,124	$0	$11,124
MTC	Sys Expansion	Bicycle/Pedestrian	$1,160,239	$354,350	$1,514,589
SLOCOG	Sys Mgmt: TDM	Bicycle/Pedestrian	$19,260	$23,660	$42,920
TMPO	Sys Expansion & Mgmt	Bicycle/Pedestrian	$50,805	$102,128	$152,933
Shasta	Sys Expansion	SR 44 - Old Ore Trail	$2,312	$0	$2,312
ACTC	Syst Expansion	Regional Bike/Ped CIP projects	$62,000	$0	$62,000
EDCTC	Sys Expansion	Bicycle/Pedestrian	$27,711	$0	$27,711
SBCAG	SYS Expansion	Bicycle/Pedestrian	$1,024,145	$21,931	$1,046,076
HCAOG	Sys Expansion	Bicycle/Pedestrian	$2,205	$739	$2,944
StanCOG	Sys Expansion	Bicycle/Pedestrian	$69,757	$0	$69,757
BCAG	Sys Expansion	Bicycle/Pedestrian	$7,311	$0	$7,311
SCAG	Sys Expansion	Bicycle/Pedestrian	$620,000	$0	$620,000
Total			**$3,935,565**	**$577,816**	**$4,513,382**

Appendix B: System Expansion and System Management Project Listings

Summary			
	Cost for Projects To Be Completed Between 2011-2020 (in thousands of dollars)		
Category	***Expansion Portion***	***System Management Portion***	***2011 - 2020 Total***
State Highways: General Purpose lanes	$40,650,215	$3,082,069	$43,732,285
State Highways: Managed, Toll and HOV	$38,089,928	$652,708	$38,742,636
Local Roads	$24,155,968	$2,294,798	$26,450,765
Public Transit	$30,903,798	$1,270,308	$32,174,106
Intercity Passenger Rail	$6,143,864	$94,045	$6,237,909
Freight Rail	$21,924,017	$387,332	$22,311,349
Seaports	$7,097,466	$402,550	$7,500,016
Airports	$4,553,791	$953,892	$5,507,683
Land Ports	$33,798	$0	$33,798
Major Intermodal Facilities	$5,946,876	$0	$5,946,876
Bicycle and Pedestrian Projects	$3,935,565	$577,816	$4,513,382
Total	**$183,435,286**	**$9,715,519**	**$193,150,806**

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APPENDIX C: CALIFORNIA SEAPORT MOBILITY AND CAPACITY PROJECTS

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California Seaport Mobility and Capacity Projects

Project Type	County	Sponsor	Project/Route Name	Cost for Projects To Be Completed Between 2011-2020		
				Expansion Portion	System Management Portion	2011 - 2020 Total
Seaport Mobility Projects						
System Expansion	San Joaquin	Port of Stockton	Navy Drive Bridge Replacement Project	$11,000,000		$11,000,000
System Expansion	San Joaquin	Port of Stockton	State Route 4/Fresno Avenue Intersection Improvements	$1,000,000		$1,000,000
System Expansion	San Joaquin	Port of Stockton	Overweight corridor improvements	$10,000,000		$10,000,000
System Expansion	San Joaquin	Port of Stockton	Port of Stockton Expressway/BNSF grade separation	$9,000,000		$9,000,000
System Expansion	San Joaquin	Port of Stockton	Robert's Island Bridge Project	$24,000,000		$24,000,000
System Expansion	San Joaquin	Port of Stockton	Railroad Bridge to Rough and Ready Island Replacement Project	$15,000,000		$15,000,000
System Expansion	San Joaquin	Port of Stockton	San Francisco Bay to Stockton Ship Channel Deepening Project	$141,447,000		$141,447,000
System Maintenance	San Joaquin	Port of Stockton	Port of Stockton O & M Program		$50,000,000	$50,000,000
System Expansion	San Joaquin	Port of Stockton	TIGER I Grant	$13,000,000		$13,000,000
System Expansion	Humboldt	Humboldt Bay Harbor District	EIR/EIS Design for Redwood Terminal Berth 1	$1,800,000		$1,800,000
System Expansion	Humboldt	Humboldt Bay Harbor District	Maintenance Dredging - Redwood Terminal Berth 1 and 2	$2,100,000		$2,100,000
System Expansion	Humboldt	Humboldt Bay Harbor District	Repairs to Redwood Terminal Berth 1 and 2	$5,000,000		$5,000,000
System Expansion	Humboldt	Humboldt Bay Harbor District	Modernize Redwood Marine Terminal	$38,000,000		$38,000,000
System Expansion	Humboldt	Humboldt Bay Harbor District	Modernize Fields Landing Marine Terminal	$35,000,000		$35,000,000
System Expansion	Humboldt	Humboldt Bay Harbor District	Upland Disposal Site Completion Project	$1,000,000		$1,000,000
System Expansion	Humboldt	Humboldt Bay Harbor District	Long-Term Sediment Program	$20,000,000		$20,000,000
System Expansion	Humboldt	Humboldt Bay Harbor District/City of Eureka	Maintenance Dredging Woodley Island and Eureka Public marinas and inner channel docks	$12,000,000		$12,000,000
System Expansion	Solano	Port of Benicia	Repair East access trestle	$3,000,000		$3,000,000
System Expansion	Solano	Port of Benicia	Realign Port entrance	$1,000,000		$1,000,000
System Management	Solano	Port of Benicia	Maintenance Dredging		$750,000	$750,000
System Manageme	Solano	Port of Benicia	Repave upper Port connector road		$250,000	$250,000
System Management	Los Angeles	Port of Long Beach	Pier F Support Yard		$35,500,000	$35,500,000
System Expansion	Los Angeles	Port of Long Beach	Terminal Island Wye Track	$12,300,000		$12,300,000
System Expansion	Los Angeles	Port of Long Beach	Ocean Blvd. Realignment	$67,300,000		$67,300,000
System Expansion	Los Angeles	Port of Long Beach	Pier A	$113,200,000		$113,200,000
System Expansion	Los Angeles	Port of Long Beach	Pier S	$532,969,000		$532,969,000
System Expansion	Los Angeles	Port of Long Beach	Middle Harbor	$967,743,000		$967,743,000
System Expansion	Los Angeles	Port of Long Beach	Pier G	$181,625,000		$181,625,000

Project Type	County	Sponsor	Project/Route Name	Cost for Projects To Be Completed Between 2011-2020		
				Expansion Portion	System Management Portion	2011 - 2020 Total
System Expansion	Los Angeles	Port of Long Beach / Port of Los Angeles	Constrain Badger Bridge Lifts	$1,220,000		$1,220,000
System Expansion	Los Angeles	Port of Long Beach	Gerald Desmond Bridge Replacement	$960,203,000		$960,203,000
System Expansion	Los Angeles	Alameda Corridor Transportation Authority (ACTA)	SR-47 Schuyler Heim Bridge Replacement	$687,000,000		$687,000,000
System Management	Los Angeles	Port of Long Beach	Ocean Blvd. Bridge Over LA River Rehab.		$80,000,000	$80,000,000
System Expansion	Los Angeles	Port of Long Beach	Various Dredging Projects	$142,558,000		$142,558,000
System Expansion	Yolo	Port of West Sacramento (PWS)	Westside Rail Relocation	$75,000,000		$75,000,000
System Expansion	Yolo	Port of West Sacramento (PWS)	Heavyweight Corridor	$6,500,000		$6,500,000
System Expansion	Yolo	Port of West Sacramento (PWS)	West Capitol Rail Crossing	$2,500,000		$2,500,000
System Expansion	Yolo	Port of West Sacramento (PWS)	Maintenance Dredging	$3,000,000		$3,000,000
System Expansion	Yolo	Port of West Sacramento (PWS)	Deepening Project	$150,000,000		$150,000,000
System Expansion	Yolo	Port of West Sacramento (PWS)	Barge Container Service Phase 2	$10,000,000		$10,000,000
System Expansion	San Mateo	Port of Redwood City	Channel Deepening Study	$6,300,000		$6,300,000
System Expansion	San Mateo	Port of Redwood City	Channel Deepening	$30,000,000		$30,000,000
Sys Mgmt: Safety and Management	San Mateo	Port of Redwood City	Channel Maintenance Dredging		$9,000,000	$9,000,000
System Expansion	San Mateo	Port of Redwood City	Ferry Terminal Infrastructure	$20,000,000		$20,000,000
System Expansion	San Mateo	Caltrans, City and Port of Reedwood City	Reconstruct US 101/ SR 84 (Woodside Road) Interchange	$80,000,000		$80,000,000
System Expansion	San Diego	Port Of San Diego	32nd Street/Vesta Street Freeway Onramp	$202,000,000		$202,000,000
System Expansion	San Diego	Port Of San Diego	Cesar Chavez/TAMT Entrance Grade Seperation	$67,000,000		$67,000,000
System Expansion	San Diego	Port Of San Diego	Bay Marin Intersection Enhancement	$3,000,000		$3,000,000
System Expansion	San Diego	Port Of San Diego	Civic Center Drive Intersection Enhancement	$3,000,000		$3,000,000
System Expansion	Los Angeles	Port of Los Angeles	Highway Improvements	$39,850,000		$39,850,000
System Expansion	Los Angeles	Port of Los Angeles	Highway Improvements	$34,293,000		$34,293,000
System Expansion	Los Angeles	Port of Los Angeles	Grade Separation	$79,902,000		$79,902,000
System Expansion	Los Angeles	Port of Los Angeles	Port Improvements	$130,231,000		$130,231,000
System Expansion	Los Angeles	Port of Los Angeles	Transportation	$220,895,000		$220,895,000
System Expansion	Los Angeles	Port of Los Angeles	Community	$1,212,530,000		$1,212,530,000
System Expansion and Management	San Francisco	Port of San Francisco	19th & 20th Street Rebuild and Extension	$12,000,000	$4,000,000	$16,000,000
System Expansion	San Francisco	Port of San Francisco	Cargo Way	$13,000,000		$13,000,000

Project Type	County	Sponsor	Project/Route Name	Cost for Projects To Be Completed Between 2011-2020		
				Expansion Portion	System Management Portion	2011 - 2020 Total
System Expansion	San Francisco	Port of San Francisco	Pier 96 Bulk Export Terminal Facility	$25,000,000		$25,000,000
System Expansion	San Francisco	Port of San Francisco WETA	Ferry Terminals	$20,000,000		$20,000,000
System Expansion	San Francisco	Port of SF/SF Redevelopment/ WETA	Central Waterfront Ferry Terminal, Terminus of 16th Street	$16,000,000		$16,000,000
System Expansion	San Francisco	Port of SF/ SF Planning/DPW	Jefferson Street	$10,000,000		$10,000,000
System Expansion	San Francisco	Port of San Francisco	Central Basin Dredging	$10,000,000		$10,000,000
Sys Mgmt: Safety and Management	Alameda	Port of Oakland	7th Street Grade Separation Project		$220,000,000	$220,000,000
System Expansion	Alameda	Port of Oakland	Outer Harbor Intermodal Terminal (OHIT)	$270,000,000		$270,000,000
System Expansion	Alameda	Port of Oakland	Channel Dredging	$100,000,000		$100,000,000
System Expansion	Alameda	Port of Oakland	Shore Power Infrastructure	$71,000,000		$71,000,000
System Expansion	Alameda	Port of Oakland	Berths 60-63 wharf Seismic Replacement and Berth Deepening	$130,000,000		$130,000,000
System Expansion	Alameda	Port of Oakland	Adeline Street Bridge Replacement	$35,000,000		$35,000,000
System Management	Contra Costa	Port of Richmond	Terminal 4 Wharf Replacement		$2,200,000	$2,200,000
System Management	Contra Costa	Port of Richmond	Terminal 1 Wharf Rrepairs/Upgrades		$850,000	$850,000
Total				**$7,097,466,000**	**$402,550,000**	**$7,500,016,000**

Project Type	County	Sponsor	Project/Route Name	Cost for Projects To Be Completed Between 2011-2020		
				Expansion Portion	System Management Portion	2011 - 2020 Total
Seaport Capacity Projects						
System Management	Ventura	Port of Hueneme (OHD)	Wharf Preservation and Management		$12,000,000	$12,000,000
System Expansion	Ventura	Port of Hueneme (OHD)	Expansion of Cargo Handling Capabilities	$20,000,000		$20,000,000
System Expansion	Ventua	Port of Hueneme (OHD)	Navigation Improvements	$25,000,000		$25,000,000
System Expansion	Solano	Port of Benicia	Redeck Berth 1 (BNC1)	$5,000,000		$5,000,000
System Expansion	Solano	Port of Benicia	Redeck Berth 3 (BNC3)	$4,000,000		$4,000,000
System Expansion	Solano	Port of Benicia	Cargo warehouse	$9,000,000		$9,000,000
System Expansion	Solano	Port of Benicia	Develop unused Port Property	$15,000,000		$15,000,000
System Expansion	Yolo	Port of West Sacramento (PWS)	Ship Fendering System	$3,500,000		$3,500,000
System Expansion	San Diego	Port Of San Diego	Tenth Ave Marine Terminal Capacity Enhancements	$76,000,000		$76,000,000
System Expansion	San Diego	Port Of San Diego	National City Marine Terminal	$140,000,000		$140,000,000
System Expansion	Los Angeles	Port of Los Angeles	Terminals	$1,226,024,000		$1,226,024,000
System Expansion	Los Angeles	Port of Los Angeles	Security	$144,330,000		$144,330,000
System Expansion	Los Angeles	Port of Los Angeles	Maritime Services	$100,133,000		$100,133,000
System Expansion and Management	Alameda	Port of Oakland	General utility Infrastructure Upgrade	$85,000,000 $20,000,000	$10,000,000	$85,000,000 $10,000,000 $20,000,000
System Management	Alameda	Port of Oakland	General Maintenance		$95,000,000	$95,000,000
Total				**$1,872,987,000**	**$117,000,000**	**$1,989,987,000**

APPENDIX D: REGIONAL MAPS

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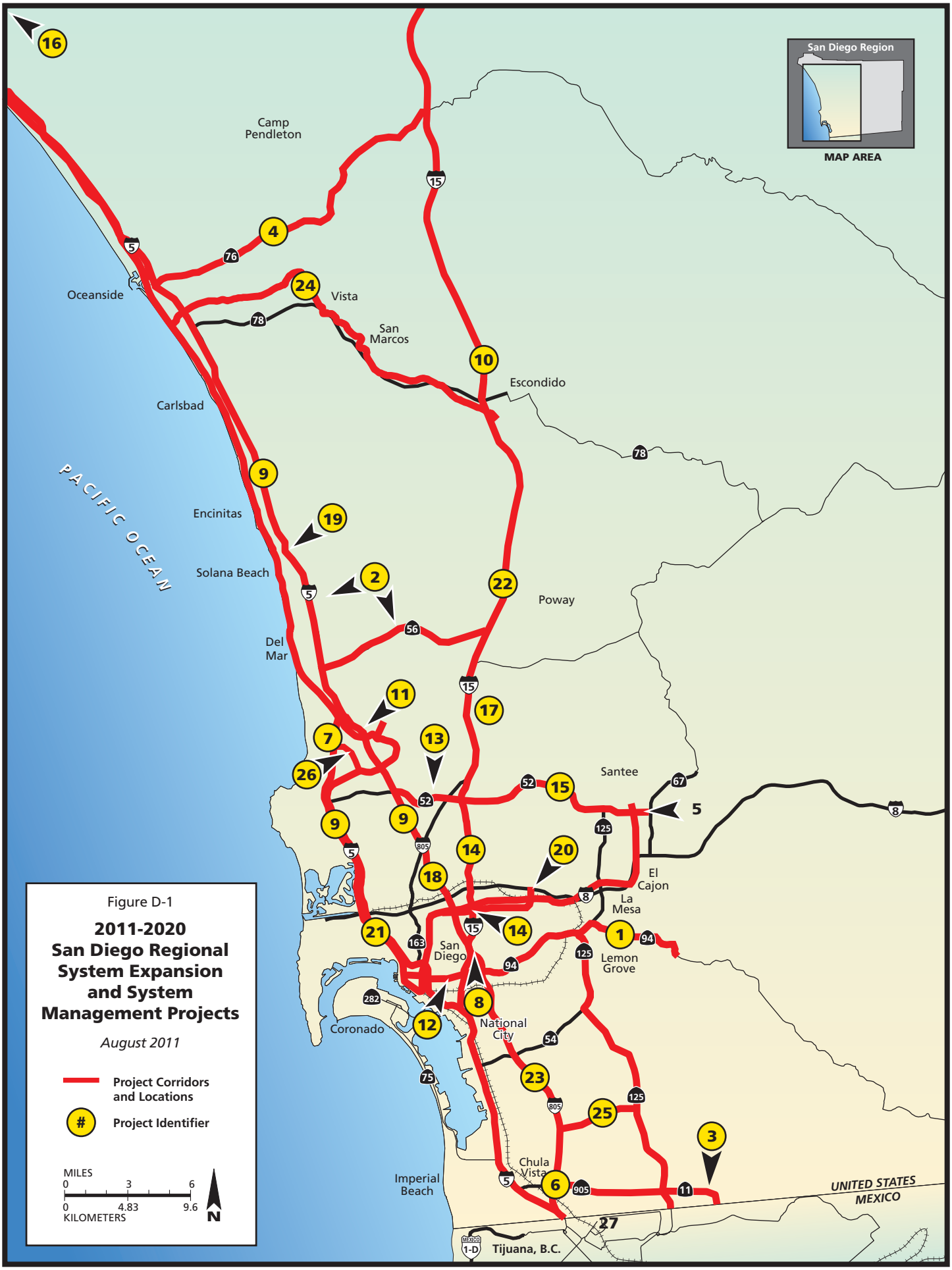

San Diego Region
MAP AREA
Camp Pendleton
Oceanside
Vista
San Marcos
Escondido
Carlsbad
Encinitas
Solana Beach
Del Mar
Poway
Santee
El Cajon
La Mesa
Lemon Grove
San Diego
National City
Coronado
Imperial Beach
Chula Vista
Tijuana, B.C.
PACIFIC OCEAN
UNITED STATES
MEXICO
Figure D-1
2011-2020 San Diego Regional System Expansion and System Management Projects
August 2011
Project Corridors and Locations
Project Identifier
MILES
0 3 6
0 4.83 9.6
KILOMETERS
N

2011 - 2020 San Diego Regional System Expansion and System Management Projects

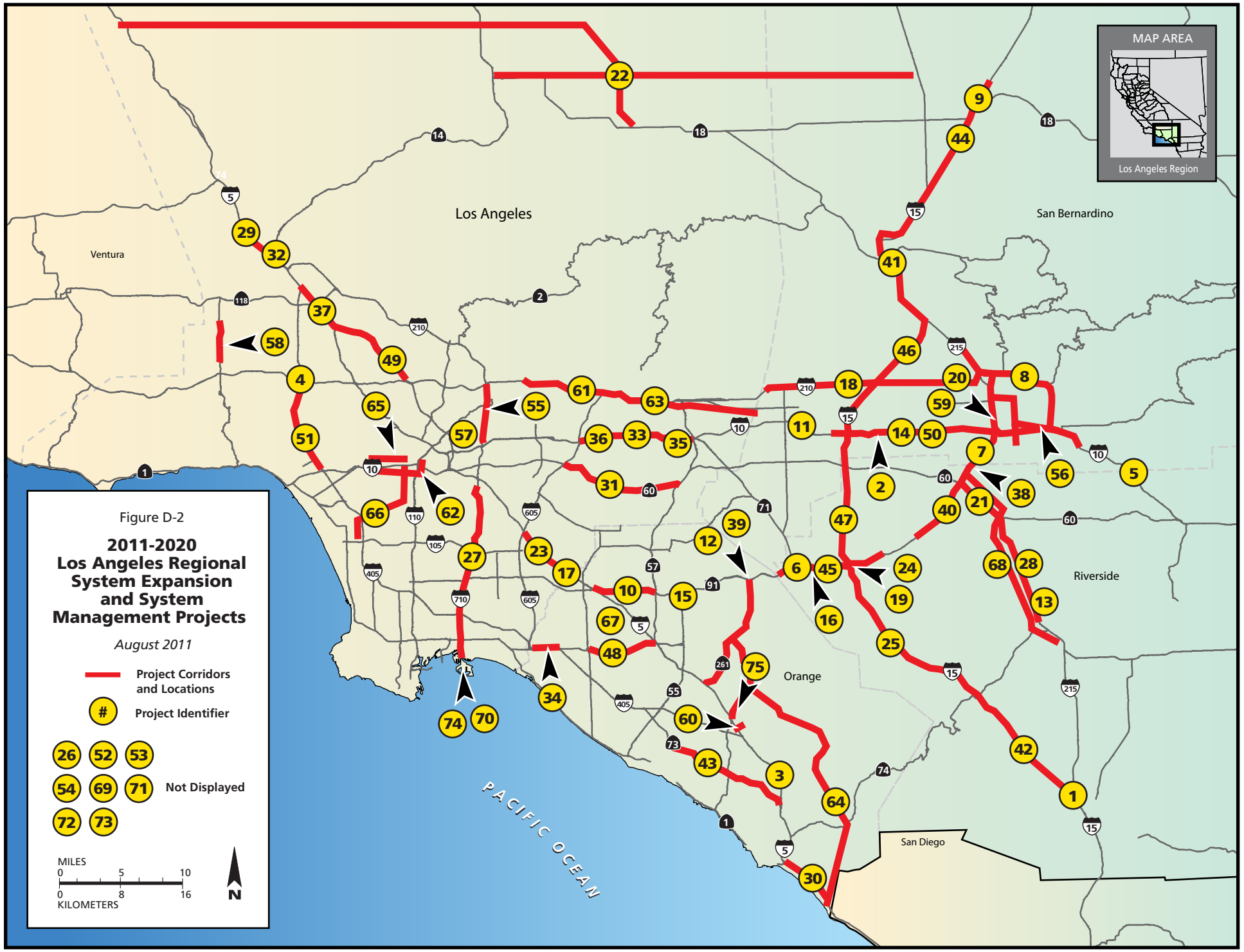
General Purpose Lanes		$ In Thousands
1	SR 94/ SR 125: Construction of freeway to freeway connectors - West to North and South to East	$160,500
2	I-5/SR 56: Construction of freeway to freeway connectors - West to North and South to East	$197,950
3	SR 11: From SR 905 to Mexico: construction of 4 toll lanes	$300,300
4	SR 76: From Melrose Drive to I-15: expansion from 2 to 4 conventional highway lanes	$455,000
5	SR 52: From SR 125 to SR 67: construction of 4 freeway lanes	$473,440
6	SR 905: From I-805 to Mexico: construction of 6 freeway lanes	$523,600

HOV / Managed Lanes		$ In Thousands
7	I-5: From La Jolla Village Drive to I-5/I-805 Merge: expansion from 8/14 freeway lanes to 8/14 freeway lanes + 2 High Occupancy Vehicle lanes	$145,600
8	I-15/SR 94: South to West and East to North: construction of High Occupancy Vehicle lane connectors	$149,800
9	I-5/I-805: North to North and South to South: construction of High Occupancy Vehicle lane connectors	$154,700
10	I-15: From Centre City parkway to SR 78: expansion from 8 freeway lanes to 8 freeway lanes + 4 Managed Lanes	$191,100
11	I-805: From Carroll Canyon Road to I-5: Expansion from 8 freeway lanes to 8 freeway lanes + 2 High Occupancy Vehicle lanes	$198,380
12	SR 94: From I-5 to I-805: expansion from 8 freeway lanes to 8 freeway lanes + 2 High Occupancy Vehicle lanes	$214,000
13	SR 52: From SR 52 to Carroll Canyon Road: expansion from 8 freeway lanes to 8 freeway lanes + 4 Managed Lanes	$217,210
14	I-15: From SR 94 to SR 163: expansion from 6/8 freeway lanes to 8 freeway lanes + 2 High Occupancy Vehicle lanes	$283,550
15	SR 52: From I-805 to SR 125: expansion from 4/6 freeway lanes to 6 freeway lanes + 2 Managed Lanes	$300,300
16	SR 241: From Orange County to I-5: construction of 4 toll lanes	$365,820
17	I-15: From SR 163 to SR 56: expansion from 8 freeway lanes + 2 managed lanes to 10 freeway lanes + 4 Managed Lanes/movable barrier	$376,740
18	I-805: From Palomar Street to SR 94: expansion from 8 freeway lanes to 8 freeway lanes + 2 High Occupancy Vehicle lanes	$531,440
19	I-5: From I-5/I-805 merge to Cannon Road: expansion from 8/14freeway lanes to 8/14 freeway lanes + 4 Managed Lanes	$1,310,400

Public Transit		$ In Thousands
20	Route 611: Mid-City Rapid bus - SDSU to Downtown San Diego via El Cajon Blvd. and Park Blvd.	$100,000
21	Route 510: Increase in Blue line Service	$265,000
22	Route 610: Escondido to Downtown San Diego via I-15/ SR 94	$315,000
23	Route 628: Otay Mesa to Downtown San Diego via I-805/SR 94	$420,000
24	Route 399: Increase in SPRINTER rail	$699,000
25	Route 680: Otay Mesa to Sorrento Mesa via I-805/I-15/SR 52	$820,000
26	Route 570: Mid-Coast Trolley	$1,008,000

Major Intermodal Facilities		$ In Thousands
27	San Ysidro Intermodal Freight: SD&AE facility and South Line Mainline in San Ysidro	$135,672

Total Cost ($ In Thousands) $10,312,502


MAP AREA
Los Angeles Region
Los Angeles
San Bernardino
Ventura
Orange
Riverside
San Diego
PACIFIC OCEAN
Figure D-2
2011-2020
Los Angeles Regional
System Expansion
and System
Management Projects
August 2011
Project Corridors
and Locations
Project Identifier
26 52 53
54 69 71 Not Displayed
72 73
MILES
0 5 10
0 8 16
KILOMETERS
N

2011 - 2020 Los Angeles Regional System Expansion and System Management Projects

General Purpose Lanes		$ In Thousands
1	I-15 Add 1 MF Lane each dir, Bundy Canyon to I-15/I-215 Interchange (from 3 to 4 MF each dir)	$110,000
2	IN FONTANA AT BEECH AVENUE CONSTRUCT 4 LANE INTERCHANGE (2 LANES IN EACH DIRECTION.	$113,023
3	Add new interchange at Marguerite Parkway (Saddleback CC Connection)	$113,120
4	Route 405: CITY OF L.A.-AT ROUTE 405 & US 101 INTERCHANGE. CONSTRUCT FREEWAY CONNECTOR FROM SB RTE 405 TO NB&SB US 101 & ADD AUX LANE FROM BURBANK TO NB 101 CONNECTOR (EA# 199610, PPNO 2787)	$120,144
5	Replace Bridge, Ramps, Construct Auxiliary Lanes, and Realign Calimesa Rd (EA 0A710K)	$122,898
6	AT SR91/71 JCT: REPLACE EB 91 TO NB 71 CONNECTOR W/ DIRECT FLY-OVER CONNECTOR, AND RECONSTRUCT THE GREEN RIVER ROAD EB ON-RAMP (EA: 0F541)	$125,510
7	IN GRAND TERRACE AT BARTON ROAD INTERCHANGE RECONSTRUCT BARTON RD. I/C WITH MODIFIED PARTIAL CLOVERLEAF CONFG. CONSTRUCT O/C ADD APPROX 1,500' AUX LN AT NB EXIT;CONSTRUCT NEW 1.000' 4 LANE SECTION OF COMMERCE WAY;ADD 2 LANES TO 3200 FT. SECTION OF BARTON RD. CONSTRUCT NEW LOCAL CONNECTOR ST @ NW QUAD OF I/C W 2 LANES ABOUT 1,000 FT.(from Rv. 21545.1 to SBD215 2.7)	$141,407
8	SR-210: Add 1 MF lane and 1 HOV lane each direction and widen UC's (PM 22.0-33.2)	$143,281
9	IN VICTORVILLE BETWEEN MOJAVE DRIVE AND 1.6 KM N/O STODDARD WELLS RD. O/C PHASE 2 RECONSTRUCT D ST. AND E ST. I/C AND STODDARD WELLS I/C (REFER TO MODELING DETAILS)(CA061)	$147,000
10	ON SR-91 WB FROM SR-57 TO I-5, TIE EXISTING AUX LANES TOGETHER TO FORM A NEW 4TH MF LANE	$151,985
11	I-10 AT GROVE INTERCHANGE AND GROVE AVE. CORRIDOR - RELOCATE I/10 & 4TH ST. I/C TO GROVE AVE. AND WIDEN GROVE AVE BETWEEN I-10 TO HOLT (WIDEN 4-6 LANES)	$156,000
12	In Orange County, add a WB MF lane from 241 off ramp to Gypsum Canyon and Aux lanes each direction between 241 and County line. See Riverside County for additional improvements.	$177,100
13	ON I-215 IN SOUTHWEST RIVERSIDE COUNTY FROM SCOTT RD TO NUEVO RD IC: CONSTRUCT A THIRD MIXED FLOW LANE IN EACH DIRECTION (WIDENS I-215 FROM 4 TO 6 LANES - 3 in each direction) (EA: 0F162)	$222,281
14	I-10: Add 1 Aux lane each direction	$251,927
15	SR-91: Improve interchange	$271,402
16	SR-91: Add 1 MF lanes each direction	$300,000
17	Route 5: IN NORWALK: FROM ORANGE COUNTY LINE TO ROUTE 605: CARMENITA INTERCHANGE IMPROVEMENT (EA 2159C0, PPNO 2808A) (TCRP 42.3, & 43)	$379,730
18	UPLAND TO SAN BERNARDINO FROM LA CO LINE TO RTE 215 - 8 LN FREEWAY INCLUDING 2 HOV LNS (6+2)-210 CORR. W/AUX LNS THRUOUT SEGS. 9-11(SEG.11 INCL CONNECTOR BETWEEN 210 & 215 (MORE)	$482,339
19	Build connector improvements and collector distribution system at I-15	$497,737
20	I-215 CORRIDOR NORTH - IN SAN BERNARDINO, ON I-215 FROM RTE 10 TO RTE 210 - ADD 2 HOV & 2 MIXED FLOW LNS (1 IN EA. DIR.) AND OPERATIONAL IMP INCLUDING AUX LANES AND BRAIDED RAMP	$718,586
21	I-215: ON I-215/SR91/SR60, RIV I215 COR IMPROV PROJ - FROM 60/91/215 JCT TO 60/215 SPLIT - WIDEN 6 TO 8 LNS, INCLUDING MAINLINE/IC IMPROVS, ADD HOV, AUX, & SB TRUCK CLIMB LN, AND LANDSCAPING (EA: 3348U1, 33486, 33487, and 33488)	$782,720
22	HI- DESERT CORR. PHASE 1, SR-18 REALIGNMENT FROM US 395 IN ADELANTO TO SR-18 E/O APPLE VALLEY. COONSTRUCT 4-6 LANE FREEWAY/EXPRESSWAY. CONSTRUCT NEW IC @I-15 W/AUX LANES NORTH AND SOUTH OF NEW IC. CONSTRUCT INTERSECTION @US 395 W/TURN POCKETS TO NORTH AND SOUTH	$1,156,000
23	Route 005: LA MIRADA, NORWALK & SANTA FE SPRINGS-ORANGE CO LINE TO RTE 605 JUNCTION. WIDEN FOR HOV & MIXED FLOW LNS, RECONSTRUCT VALLEY VIEW (EA 2159A=EA 21591, 21592, 21593, 21594, 21595; PPNO 4153, 2808, 4154, 4155, 4156). TCRP#42.2&42.1	$1,240,524
24	ON SR91/I15: SR91 - CONST 1 MF LN & 1 AUX LN EA DIR AT VAR LOCS (SR241- PIERCE ST) (OC PM 14.43-18.91), CD SYSTEM (2/3/4 LNS FROM MAIN-I15), 1 HOT LN & CONVERT HOV LN TO HOT LN EA DIR (OC TO I15); I15 - CONST HOT MED DIRECT CONNECTOR JCT SR91/I15 FROM NB I15 TO WB SR91/EB SR91 TO SB I15/SB I15 TO WB SR91/EB SR91 TO NB I15, 1 HOT LN EA DIR HIDDEN VALLEY PKWY TO CAJALCO RD (I15 PM 35.64-45.14)	$1,300,517
25	I-15 - SBD CO LINE TO JCT I-15/I-215: CONSTRUCT 4 HOT LNS (2 HOT LNS EA DIR) FROM SBD CO LINE TO HIDDEN VALLEY PKWY AND FROM CAJALCO RD TO SR-74; CONS 2 MF LNS (1 LN EA DIR FROM SBD CO LINE TO SR-74); CONS 2 HOT LNS (1 HOT LN EA DIR) FROM HIDDEN VALLEY PKWY TO CAJALCO RD; CONS 2 HOV LNS (1 LN EA DIR) FROM SR74 TO JCT I-15/I-215 (PA&ED ONLY).	$1,706,347
26	DEBT SERVICE - I-710 CORRIDOR	$5,939,925

27	I-710 CORRIDOR USER-FEE BACKED CAPACITY ENHANCEMENT - WIDEN TO 5 MIXED FLOW + 2 DEDICATED LANES FOR CLEAN TECHNOLOGY TRUCKS (EACH DIRECTION) AND INTERCHANGE IMPROVEMENTS, FROM OCEAN BLVD IN LONG BEACH TO THE INTERMODAL RAILROAD YARDS IN COMMERCE/VERNON	$8,239,161

HOV / Managed Lanes		**$ In Thousands**
28	I-215: Add 1 HOV Lane in each direction	$121,000
29	Route 005: PHASE 1 OF 3-- IN LA/SANTA CLARITA: FR CALGROVE TO RTE 14; CONSTRUCT TRUCK LANE (EA 2332A, PPNO 3189), (SAFTETEA-LU#465 FUNDED PAED FOR THIS PHASE INCLUDED IN LA0G440).	$130,000
30	I-5: Add 1 HOV lane each direction	$150,899
31	Route 60: FROM RTE. 605 TO BREA CANYON RD. -- CONSTRUCT ONE HOV LANE IN EACH DIRECTION) (CFP: 358, 4262, 6137=67,150+IIP: 5,100) (EA#129410, 129421, PPNO 0482R,0482RA)	$152,970
32	Route 5: RTE. 5/14 INTERCHANGE & HOV LNS ON RTE 14 - CONSTRUCT 2 ELEVATED LANES - HOV CONNECTOR (DIRECT CONNECTORS) (EA# 16800)(2001 CFP 8343) (PPNO 0168M)	$161,100
33	Route 10: FROM PUENTE TO CITRUS HOV LANES FROM 8 TO 10 LANES & SOUNDWALLS (C-ISTEA 77720, 95 STIP-IIP) (EA# 117080,11172, 1170U, PPNO# 0309N, 0309S)	$184,522
34	HOV connectors from SR-22 to I-405, between Seal Beach Blvd. (I-405 PM 022.558) and Valley View St. (SR-22 PM R000.917), with a second HOV lane in each direction on I-405 between the two direct connectors. Local funds in the amount of $72,383 are programmed in FY 09/10 in order to AC future year CMAQ funds.	$191,864
35	Route 10: HOV LANES FROM CITRUS TO ROUTE 57/210 - (EA# 11934, PPNO# 0310B)	$192,143
36	Route 010: RT 10 FROM RT 605 TO PUENTE AVE HOV LANES (8+0 TO 8+2) (EA# 117070, PPNO 0306H) PPNO 3333 3382 AB 3090 REP (TCRP #40)	$200,064
37	Route 005: --- FROM ROUTE 170 TO ROUTE 118 ONE HOV LANE IN EACH DIRECTION (10 TO 12 LANES) INCLUDING THE RECONSTRUCTION OF THE I-5/SR-170 MIXED FLOW CONNECTOR AND THE CONSTRUCTION OF THE I-5/SR-170 HOV TO HOV CONNECTOR (CFP 345) (2001 CFP 8339; CFP2197). (EA# 121901, PPNO 0158K) (TCRP#41.2)	$207,838
38	I-215 BI-COUNTY HOV LANE GAP CLOSURE PROJECT- ADD 1 HOV LANE IN EACH DIRECTION FROM SPRUCE ST. ON RIV 91 TO ORANGE SHOW RD;(ALSO INCLUDES RTP 4M0803 (STIP 2010 $24881 RCTC and $45089 SANBAG)	$212,545
39	SR-91: HOV/HOT connector NB 241 to EB 91, WB 91 to SB 241	$240,000
40	SR91 - ADAMS TO 60/215 IC: ADD ONE HOV LN IN EACH DIRECTION, RESTRIPE TO EXTEND 4TH WB MIXED FLOW LANE FROM 60/215 IC TO CENTRAL OFF-RAMP, RESTRIPE TO EXTEND 5TH WB MIXED FLOW LANE FROM 60/215 IC TO 14TH ST OFF-RAMP, AUX LNS (MADISON-CENTRAL), BRIDGE WIDENING & REPLACEMENTS, EB/WB BRAIDED RAMPS, IC MOD/RECONSTRUCT + SOUND/RETAINING WALLS	$278,456
41	I-15: Add 1 HOV lane each direction (PM 16.0-33.2)	$280,092
42	I-15: Build 2 HOV Lanes (1 lane in each direction)	$320,000
43	SR-73: SJHC, 15 MI TOLL RD BETWEEN I-5 IN SAN JUAN CAPISTRANO & RTE 73 IN IRVINE, EXISTING 3/M/F EA.DIR.1 ADD'L M/F EA DIR, PLUS CLIMBING & AUX LNS AS REQ, BY 2020 PER SCAG/TCA MOU 4/5/01	$351,111
44	I-15: Add 1 HOV lane each direction (PM 31.0-40.6)	$413,307
45	SR-91: Build/extend 4 HOT lanes (2 in each direction) Build HOT EB SR91 to SB I-15 and NB I-15 to WB SR91 connector lanes	$436,000
46	I-10: Add 1 HOV lane each direction (PM 0.0- 16.0)	$498,040
47	I-15: BUILD HOV/HOT LANES: 2 HOV3+/HOT EACH DIR FROM SR-74 TO SAN BERNARDINO COUNTY LINE	$507,000
48	ON SR-22 (I-405 TO SR55) ADD 2 HOV LANES/1 EA DIR (FRM 0 - 2) & 2 AUX LANES/1 EA DIR (FRM 0-2) (I-5 TO BEACH) & OPERATING IMPROVMENTS (SEE COMMENTS) TCRP PAYBACK WHEN AVAILABLE	$546,587
49	Route 005: --- FROM ROUTE 134 TO ROUTE 170 HOV LANES (8 TO 10 LANES) (CFP 346)(2001 CFP 8355). (EA# 12180, 12181,12182,12183,12184, 13350 PPNO 0142F,151E,3985,3986,3987) SAFETEA LU # 570. CONSTRUCT MODIFIED IC @ I-5 EMPIRE AVE, AUX LNS NB & SB BETWEEN BURBANK BLVD & EMPIRE AVE; AND MODIFY EXISTING STRUCTURES. ADD AUXILIARY LANE BETWEEN ALAMEDA AND OLIVE FROM PM 28.43 to PM 29.78	$710,274
50	I-10: Add 1 HOV lane each direction, widen UC's, reconstruct ramps (PM7.4-34.0)	$738,655
51	Route 405: ADD A 10-MILE HOV LANE ON THE NORTHBOUND 405 BETWEEN I-10 AND U.S. 101 IN LA FROM RTE 10 TO RTE 101 WIDEN FOR HOV LANE & MODIFY RAMPS, ADD NEW WB ON RAMP AT SUNSET & HOV INGRESS/EGRESS AT SANTA MONICA BLV(EA 12030, PPNO 0851G, SAFETLU SECTION 1302 #18, 1934 #20)	$1,034,000
52	SR-710: DEBT SERVICE - 710 TUNNEL	$1,726,734
53	CETAP - Riverside County to Orange County DEBT SERVICE - CETAP RIV TO OC CORRIDOR A	$1,978,321
54	DEBT SERVICE - HIGH DESERT CORRIDOR	$2,838,404
55	CONSTRUCT 4 TOLL LANES IN EACH DIRECTION IN TUNNEL TO COMPLETE THE 710 FREEWAY	$4,616,060

Public Transit		$ In Thousands
56	San Bernardino-Redlands Extension: Extend rail service to Redlands (10 miles); rail technology TBD; 15-min. freq. daily	$150,000
57	LIGHT RAIL TRANSIT FLEET- 50 NEW RAIL CAR (26 EXP (10 FOR METRO GOLD LINE EASTSIDE & (16) FOR EXPOSITION LRT) 24 REPLACEMENT CARS - .PPNO 3225.	$162,479
58	CANOGA TRANSITWAY: SAN FERNANDO VALLEY NORTH/SOUTH BRT PHASE I (EXTENSION OF METRO ORANGE LINE ALONG CANOGA RAIL ROW, BRT OR LRT, TECHNOLOGY TBD)	$166,300
59	E STREET TRANSIT CORRIDOR- FROM SAN BERNARDINO TO LOMA LINDA	$192,000
60	Irvine Guideway Demonstration Project: 5 mile Transit system in the Great Park/Spectrum area. Links Irvine Station with Spectrum and others	$285,000
61	Gold Line Foothill LRT Extension - Pasadena to Glendora	$851,000
62	MID-CITY/EXPOSITION CORRIDOR LIGHT RAIL TRANSIT PROJECT PHASE I TO VENICE-ROBERTSON STATION. (INCLUDING E200-BUSP-095, La Cienega Intermodal Center)	$862,353
63	METRO RAIL GOLD LINE EXTENSION: METRO RAIL GOLD LINE EXTENSION-SEGMENT 2 AZUSA-CITRUS TO MONTCLAIR STATION LRT EXTENSION.	$1,250,761
64	SR-241: Improvements (RTE 241/261/133)(RTE 91 TO I-5/JAMBOREE. EXISTING 2 M/F EA.DIR, 2 ADD'L M/F IN EA. DIR, PLUS CLIMB AND AUX LNS AS REQ, BY 2020 PER SCAG/TCA MOU 4/05/01.	$1,299,614
65	METRO PURPLE (FORMER RED) LINE WESTSIDE EXTENSION: WESTSIDE EXTENSION - PURPLE LINE FROM WILSHIRE/WESTERN TO LA CIENEGA	$1,448,263
66	CRENSHAW TRANSIT CORRIDOR	$1,715,000
67	Bus Rapid Transit: Add mixed flow Bus Rapid Transit with signal priority on the following lines: Katella, Edinger, Beach, and La Palma	(cost included in Fixed Route Bus category)

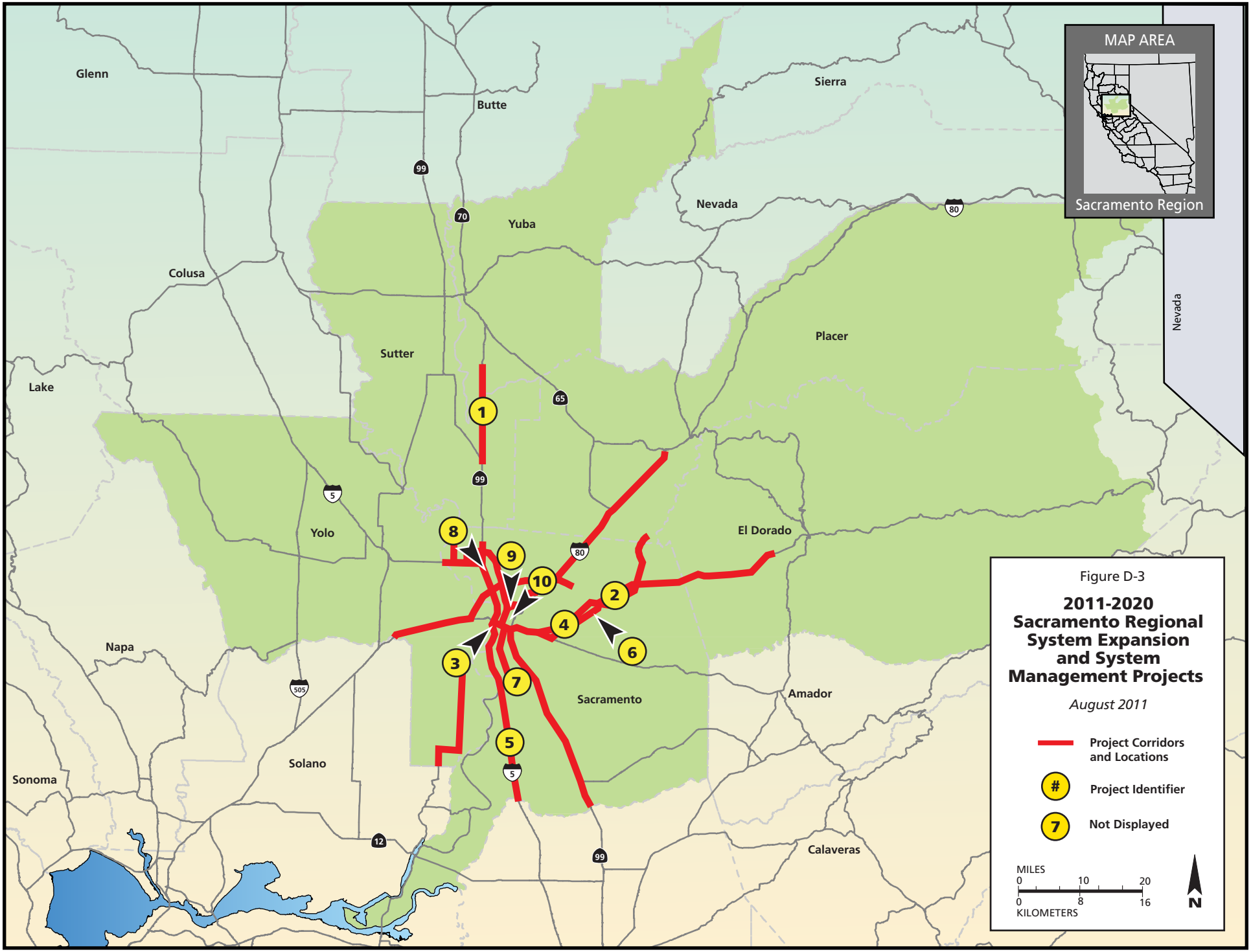
Inter-city Passenger Rail		$ In Thousands
68	RECONSTRUCT & UPGRADE SAN JACINTO BRANCH LINE FOR RAIL PASSENGER SERVICE (RIVERSIDE TO PERRIS) (PERRIS VALLEY LINE) (FY 07 5307) (UZA: RIV-SAN)	$232,000

Freight Rail		$ In Thousands
69	GRADE SEPARATION IMPROVEMENTS	$143,000
70	PORTS RAIL SYSTEM (Assumes cost covered by Ports of LA/LB)	$257,900
71	Rail Investment Package - Rail Capacity	$3,149,301
72	RAIL INVESTMENT PACKAGE - GRADE SEPARATIONS	$5,995,841
73	Debt Service - Rail Investment Package - Rail Capacity, Grade Separations, Tier 4 Engines	$10,100,413

Seaports		$ In Thousands
74	EXPANSION OF PIER B ST INTERMODAL RAILYARD (FOR PIER B ST REALIGNMENT PHASE OF PROJECT SEE LA0C8094)	$245,300

Major Intermodal Facilities		$ In Thousands
75	Irvine Station Improvements: Enhance station to accommodate metrolink, amtrak, fixed-route bus service, and the Irvine guideway	$205,000

Total Cost ($ In Thousands): $73,240,175


MAP AREA
Sacramento Region
Glenn
Butte
Sierra
Nevada
Yuba
Colusa
Sutter
Placer
Lake
Yolo
El Dorado
Napa
Sacramento
Amador
Solano
Sonoma
Calaveras
Nevada
99
70
80
65
5
505
12
1
2
3
4
5
6
7
8
9
10
Figure D-3
2011-2020 Sacramento Regional System Expansion and System Management Projects
August 2011
Project Corridors and Locations
Project Identifier
7 Not Displayed
MILES
0 10 20
0 8 16
KILOMETERS
N

2011 - 2020 Sacramento Regional System Expansion and System Management Projects

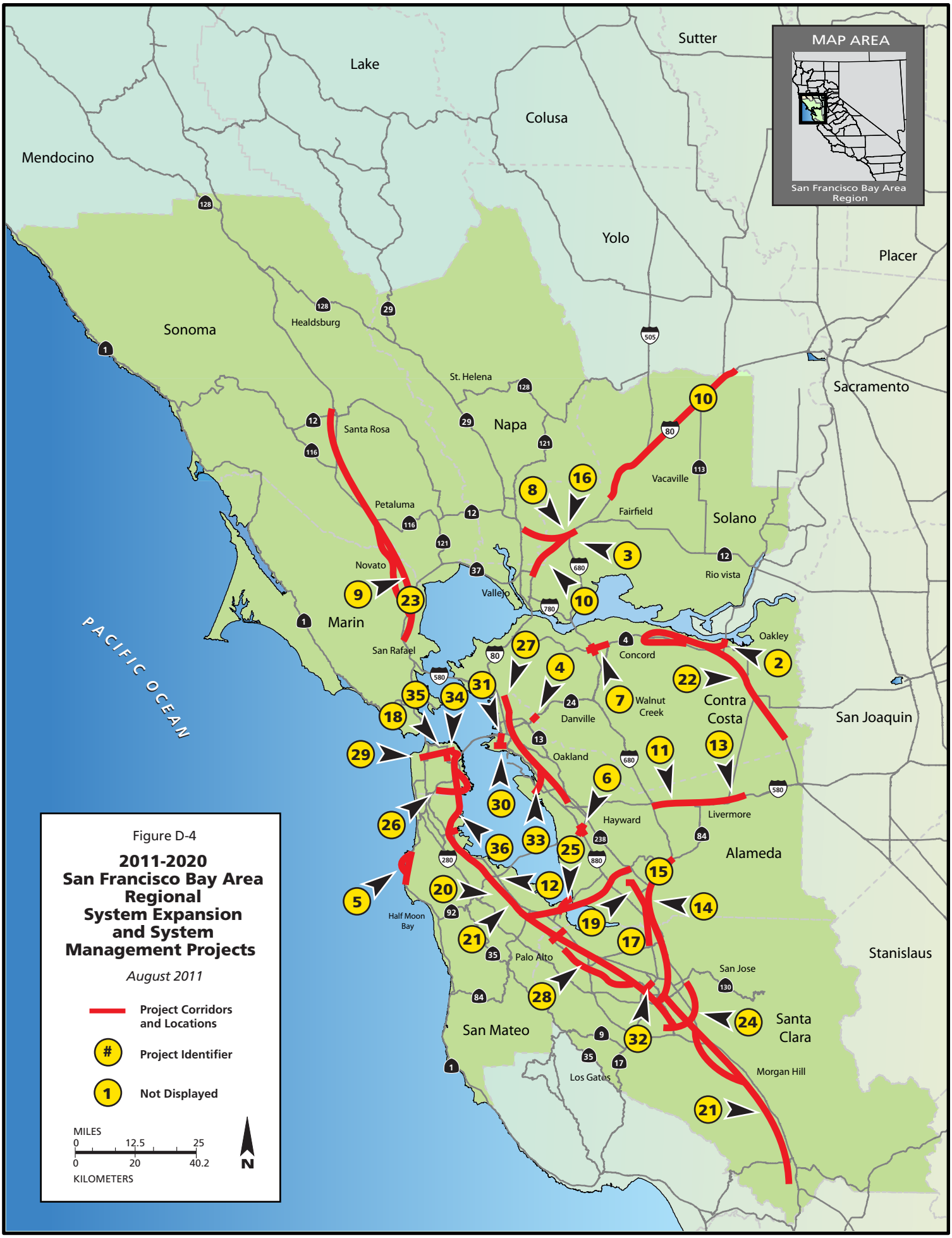
General Purpose Lanes		$ In Thousands
1	Sutter/Yuba Route 70 Corridor Project: Near Rio Oso - Route 99 to Bear River Bridge, Route 70 Expressway: Construct 4-lane expressway [combined with CAL15722]	$138,030
2	US 50 / Rancho Cordova Pkwy. Interchange: At US 50 and Rancho Cordova Pkwy.: Construct new interchange including auxiliary lanes on U.S. 50 between Hazel Ave. and Sunrise Blvd. and a four lane arterial connection to US 50 of Rancho Cordova Pkwy. to White Rock Rd.(CP05-2003)	$154,686

HOV / Managed Lanes		
3	I-5: Bus/Carpool Lanes: on I-5 from I-80 to Hwy. 70 / Hwy. 99 Includes: Bus/HOV lanes between I-80 and downtown Sacramento.	$130,784
4	U.S. 50 HOV & Community Enhancements: In Sacramento County and Rancho Cordova, on US 50: Construct high occupancy vehicle (HOV) lanes and community enhancements from Watt Avenue to Sunrise Boulevard. (Project is using tapered match. $10m of CMAQ is a loan from SACOG; this loan to be repaid with Local Funds - Measure A. Emission Benefits in kg/day are 52 NOx, 55 ROG, 7 PM10)	$162,494
5	I-5 HOV Lanes: Interstate 5, from 1.1 miles south of Elk Grove Boulevard to US 50 in Downtown Sacramento: Construct HOV (high occupancy vehicle) lanes. Construct soundwalls in various locations.	$257,232

Public Transit		$ In Thousands
6	SRTD Amtrak / Folsom Corridor Light Rail: Folsom Corridor - Downtown Sacramento Folsom - light rail extension (including vehicle purchase).	$261,000
7	South Sacramento Light Rail - Phase 2: In Sacramento, extend light rail from the terminus of South Line Phase 1 at Meadowview Station further south to Cosumnes River College (CRC). Includes 4.2 miles of track, 4 new stations, and 3 park & ride facilities.	$316,055
8	Downtown-Natomas-Airport Rail Extension-MOS3: Extend rail from Natomas Town Center to Sacramento International Airport.	$392,731
9	Downtown-Natomas-Airport Rail Extension-MOS2: Extend rail from from Richards Blvd to Natomas Town Center	$679,664

Major Intermodal Facilities		$ In Thousands
10	Sacramento Valley Intermodal : Major Transit Capital/Operations: Sacramento intermodal transportation terminal for heavy rail, light rail and bus service. Includes: realign and straighten the existing mainline UPRR freight and passenger rail tracks, provide passenger facilities that connect the Depot to the relocated platforms.	$507,793

Total Cost ($ In Thousands): $3,000,469


MAP AREA
San Francisco Bay Area Region
Sutter
Lake
Colusa
Mendocino
Yolo
Placer
Sonoma
Healdsburg
Sacramento
St. Helena
Napa
Santa Rosa
Vacaville
Petaluma
Fairfield
Solano
Novato
Rio vista
Vallejo
Marin
PACIFIC OCEAN
San Rafael
Oakley
Concord
Contra Costa
San Joaquin
Danville
Walnut Creek
Oakland
Livermore
Hayward
Alameda
Half Moon Bay
Palo Alto
San Jose
Stanislaus
San Mateo
Santa Clara
Los Gatos
Morgan Hill
Figure D-4
2011-2020 San Francisco Bay Area Regional System Expansion and System Management Projects
August 2011
Project Corridors and Locations
Project Identifier
Not Displayed
MILES
0 12.5 25
0 20 40.2
KILOMETERS
N

2011 - 2020 Major San Francisco Bay Area Regional System Expansion and System Management Projects

General Purpose Lanes		$ In Thousands
1	Santa Clara County - Improve local interchanges and auxiliary lanes	$573,000
2	Widen Route 4 from Somersville Road to Route 160 and improve interchanges	$530,000
3	Improve I-80/I-680/Route 12 interchange, including connecting I-680 northbound to Route 12 westbound (Jamieson Canyon), adding connectors and reconstructing local interchanges (Phase 1)	$487,900
4	Construct a fourth bore at the Caldecott Tunnel complex north of the three existing bores	$445,864
5	Construct Devil's Slide Bypass between Montara and Pacifica	$362,619
6	Reconstruct I-880/Route 92 interchange with direct connectors	$244,998
7	Improve the I-680/Route 4 interchange with direct connectors and widen Route 4 from 2 lanes to 3 lanes in each direction between Route 242 and Morello Avenue	$229,000
8	Widen Route 12 (Jamieson Canyon) from 2 lanes to 4 lanes from I-80 in Solano County to Route 29 in Napa County (Phase 1)	$145,696

HOV / Managed Lanes		$ In Thousands
9	Widen U.S. 101 (adding an HOV lane in each direction) from Route 37 to Marin/Sonoma County line (Marin County portion) and from Marin/Sonoma County line to Old Redwood Highway in Petaluma	$745,400
10	I-80 in Solano County from Yolo County line to Route 37 – widen to add an express lane in each direction from Yolo County line to Air Base Parkway and from Red Top Road to Route 37	$565,800
11	I-680/I-580 interchange in Alameda County – widen to add an express lane direct connector and an express lane on I-580 eastbound to Tassajara Road	$412,600
12	U.S. 101 in San Mateo County from Whipple Avenue to Millbrae – widen to add an express lane in each direction	$334,900
13	Widen I-580 from Foothill Road to Greenville Road in both directions for HOV lanes (includes auxiliary lanes)	$299,300
14	I-680 northbound in Alameda County from Santa Clara County line to Route 84 – widen to add an express lane	$237,600
15	Widen I-680 southbound in Santa Clara and Alameda counties from Route 237 to Route 84 including an express lane, ramp metering, auxiliary lanes and pavement rehabilitations	$230,920
16	I-680/I-80 interchange in Solano County – widen to add an express lane direct connector	$227,800

Public Transit		$ In Thousands
17	Extend BART from Fremont (Warm Springs) to Berryessa	$2,576,500
18	Extend the Third Street Light Rail line from north of King Street to Clay Street in Chinatown via a new Central Subway, including the purchase of light-rail vehicles	$1,570,000
19	Extend BART from Fremont to Warm Springs	$890,000
20	Implement Caltrain grade separation program in San Mateo County	$714,200
21	Electrify Caltrain from Tamien to San Francisco (includes installation of power substations and other infrastructure)	$626,000
22	Extend BART/East Contra Costa Rail (eBART) eastward from the Pittsburg/Bay Point BART station into eastern Contra Costa County	$525,000
23	Implement Sonoma Marin Area Rail Transit District (SMART)	$360,000
24	Extend the Capitol Avenue light-rail line from the Alum Rock Transit Center to a rebuilt Eastridge Transit Center	$334,000
25	Implement commuter rail service on the Dumbarton Bridge (environmental, design and right-of-way phases only)	$301,000
26	Implement a Bus Rapid Transit (BRT) project on the Geneva Avenue/Harney Way corridor (includes new infrastructure and rolling stock)	$265,000
27	Implement Bus Rapid Transit service on the Telegraph Avenue/International Boulevard/E. 14th Street corridor	$250,000
28	Implement Bus Rapid Transit (BRT) in the Alameda and El Camino Real corridors	$233,380
29	Implement a Bus Rapid Transit (BRT) project on Geary Boulevard (includes dedicated transit lanes, signal priority and pedestrian and urban design upgrades)	$219,800

Seaports		$ In Thousands
30	Correct grade separation at 7th Street/Union Pacific Railroad entry at Port of Oakland intermodal yards and improve connecting roadways through former Oakland Army Base	$427,000
31	Relocate the Outer Harbor Intermodal Terminal (OHIT) to the former Oakland Army Base (includes rail yard, storage tracks, lead tracks, truck gates and administrative/operations and maintenance buildings)	$220,000

Airports		$ In Thousands
32	Implement the Mineta San Jose International Airport automated people-mover service	$508,000
33	Build a BART Oakland Airport Connector between Coliseum BART station and Oakland International Airport	$459,000

Major Intermodal Facilities		$ In Thousands
34	Extend Caltrain to Transbay Terminal and replace Transbay Terminal, including the construction of the new Transbay Transit Center Building and rail foundation (Phase 1)	$1,589,000
35	Extend Caltrain to Transbay Terminal and replace Transbay Terminal, including preliminary engineering; environmental; planning, specifications, and estimate (PS&E); and right-of-way phases of downtown extension (Phase 2a)	$292,300
36	Improve transit and roadway connectivity between San Francisco and San Mateo counties	$280,000

Total Cost ($ In Thousands) **$18,713,577**

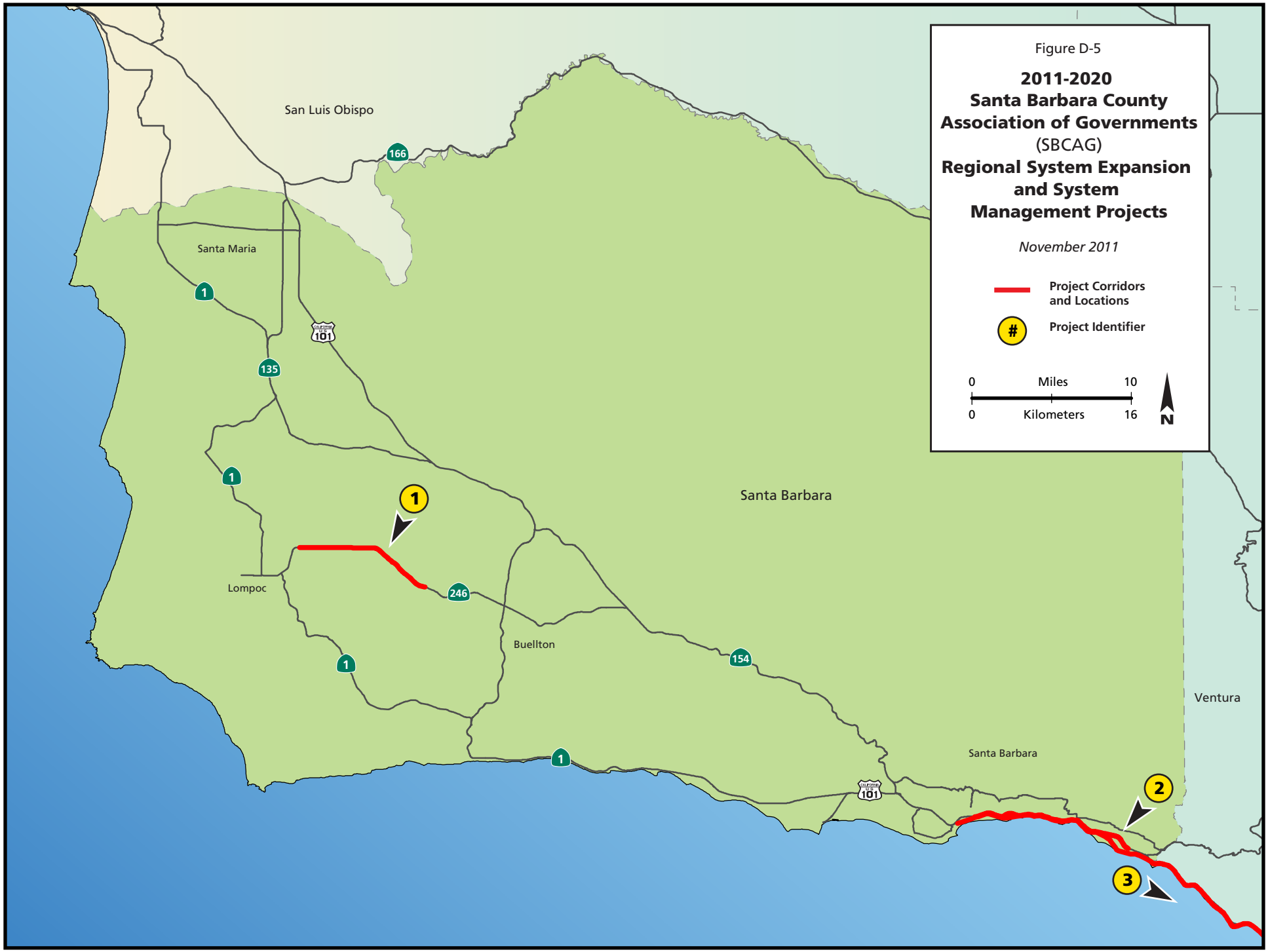


Figure D-5
2011-2020
Santa Barbara County
Association of Governments
(SBCAG)
Regional System Expansion
and System
Management Projects
November 2011
Project Corridors
and Locations
Project Identifier
0
Miles
10
0
Kilometers
16
N
San Luis Obispo
Santa Maria
Santa Barbara
Lompoc
Buellton
Ventura
Santa Barbara
166
1
135
101
246
154
1
2
3

Santa Barbara County Assocaition of Governments (SBCAG)

2011 - 2020 Regional System Expansion and System Management Projects

General Purpose Lanes		$ In Thousands
1	SR 246: from Purisima and Domingos Roads construction of passing and turning lanes	$55,000

HOV / Managed Lanes		$ In Thousands
2	U.S. 101: from Carpinteria to Santa Barbara expansion from 4 freeway lanes to 4 freeway lanes + 2 High Occupancy Vehical Lanes	$425,000

Intercity Passenger Rail		$ In Thousands
3	Commute Rail from Ventura to Santa Barbara, additional sidings, stations and other improvements	$30,000

Total Cost ($ In Thousands): $510,000

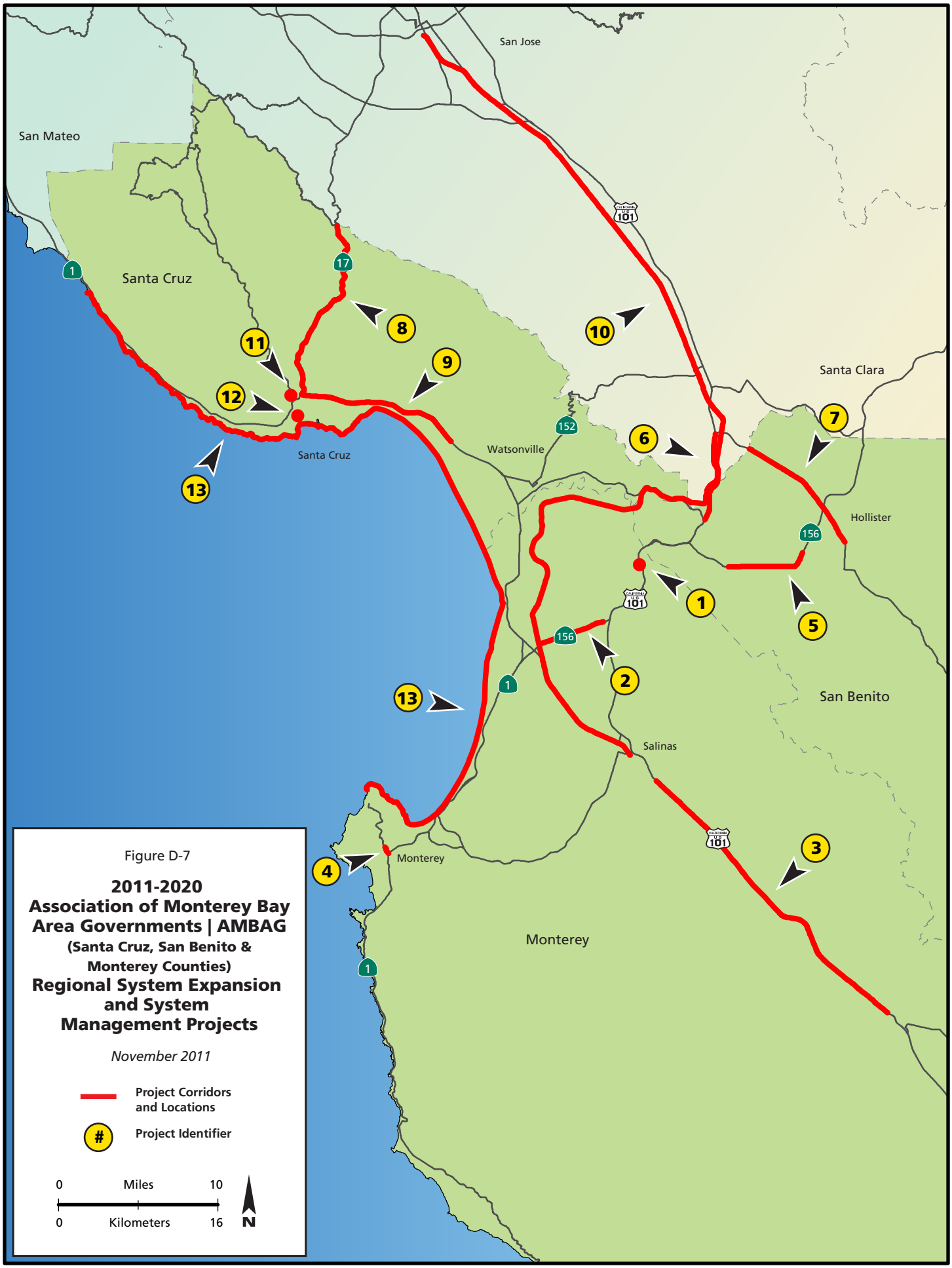

6
Monterey
1
2
46
Paso Robles
5
41
46
58
Kern
41
101
Morro Bay
1
3
San Luis Obispo
San Luis Obispo
4
Arroyo Grande
166
101
Santa Barbara
6
Figure D-6
2011-2020
San Luis Obispo
Council of Governments
(SLOCOG)
Regional System Expansion
and System
Management Projects
November 2011
Project Corridors
and Locations
#
Project Identifier
0 Miles 10
0 Kilometers 16
N

San Luis Obispo Council of Goverments (SLOCOG)
2011 - 2020 Regional System Expansion and System Management Projects

General Purpose Lanes		$ In Thousands
1	SR 46 Widening: from Almond Dr. to McMillian Rd convert 2 lane expressway to 4 lane expressway	$60,000
2	SR 46 Widening: from McMillian Rd. to the Shandon Rest Stop convert 2 lane expressway to 4 lane expressway	$73,000
3	US 101/Los Osos Valley Rd Interchange: Reconstruct interchange	$30,000
4	US 101/Brisco Rd./Grand Ave Interchange and NB Auxillary Lane: from Grand Ave to Camino Mercado reconstruct interchange and construct n/b auxilary lane	$15,000
5	US 101/SR 46 W Phase 2: realign west side frontage road	$19,000

Intercity Passenger Rail		$ In Thousands
6	Commute Rail from Ventura to Santa Barbara, additional sidings, stations and other improvements	$25,000

Total Cost ($ In Thousands): $222,000


San Jose
San Mateo
Santa Cruz
Santa Clara
Watsonville
Santa Cruz
Hollister
San Benito
Salinas
Monterey
Monterey
Figure D-7
2011-2020
Association of Monterey Bay Area Governments | AMBAG
(Santa Cruz, San Benito & Monterey Counties)
Regional System Expansion and System Management Projects
November 2011
Project Corridors and Locations
Project Identifier
0 Miles 10
0 Kilometers 16
N

Association of Monterey Bay Area Governments (AMBAG) : Monterey, San Benito, and Santa Cruz Counties
2011 - 2020 Regional System Expansion and System Management Projects

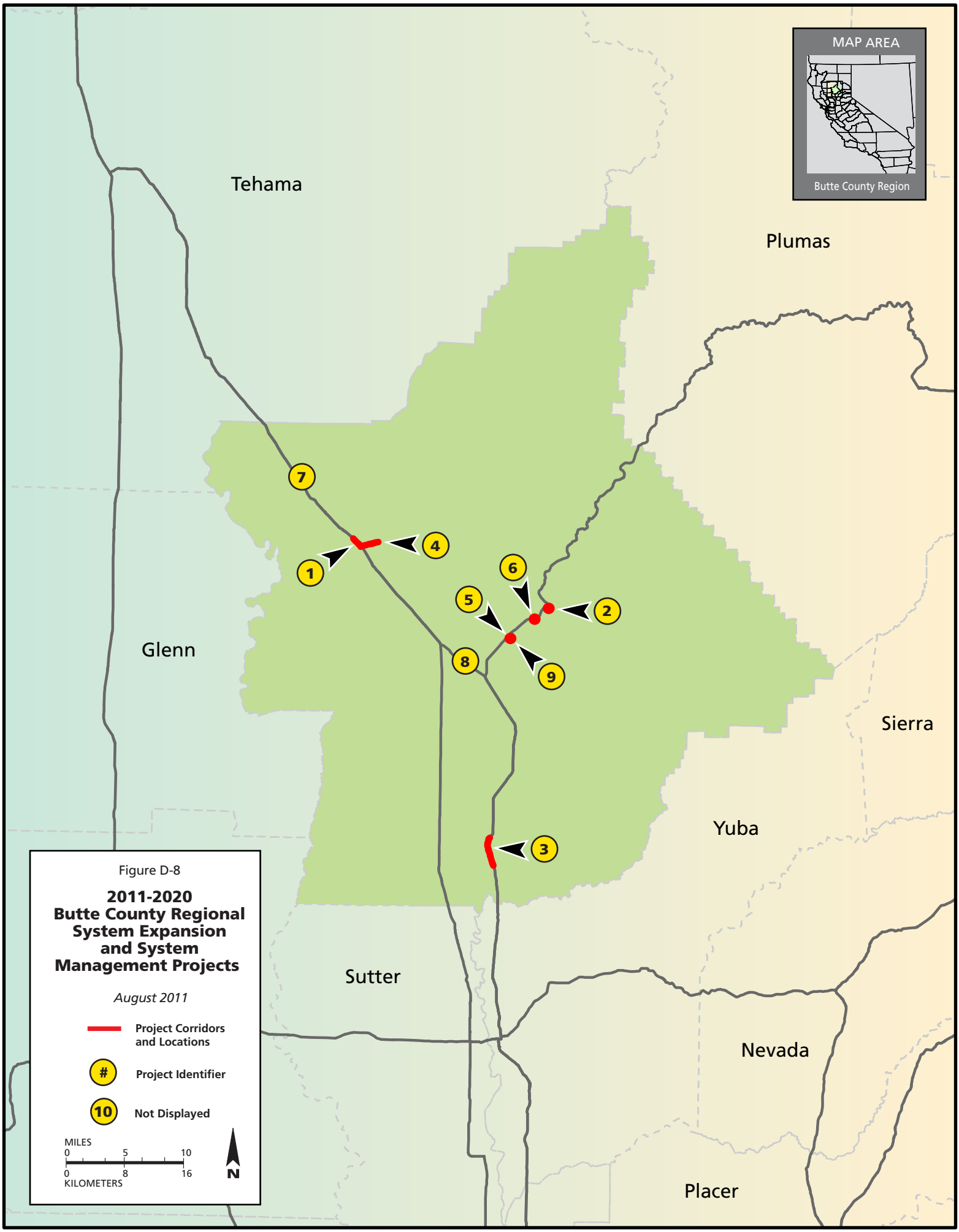
General Purpose Lanes		$ In Thousands
1	U.S. 101/San Juan Road Interchange: on US 101 in the vicinity of San Juan Rd construct new interchange	$90,600.00
2	SR 156: from Castroville to Meridian Road widen highway to 4 lanes	$108,700.00
3	U.S. 101 South County Frontage Roads: from Harris Road to Soledad construct frontage roads	$75,445.00
4	SR 68 Widening:from Community Hospital to SR1 widen SR 68 and reconfigure interchange	$25,000.00
5	SR 156: Widening: from the Alameda to Union Road convert 2 lane expressway to 4 lane expressway	$78,000.00
6	US 101 Widening to six-lane freeway: State Route 25 to State Route 129	$170,000.00
7	SR 25 Widening: convert 2 lane expressway to 4 lane expressway - from San Felip Road in Hollister to San Benito/Santa Clara Coutny Line	$74,000.00
8	SR 17 Operational Improvements from Scotts Valley to Santa Clara County line construct new guardrails, retaining walls; upgrade guardrail, crash cushions, and end treatments; and road rehabilitation	$30,000.00

HOV / Managed Lanes		$ In Thousands
9	Hwy 1 HOV lanes: from Morrisey Rd and Larkin Valley Rd add High Occupancy Vehicle lanes. New bike/ped overcrossings, operational improvements, and auxilary lanes	$500,000.00

Intercity Passenger Rail		$ In Thousands
10	Commuter Rail Extension to Salinas: Santa Clara, Santa Cruz and Monterey Counties	$110,000.00

Public Transit		$ In Thousands
11	MetroBase: site and construct operations facility	$28,000.00
12	Santa Cruz Metro Center: in Santa Cruz renovate main transit center in multi-use redevelopment project	$15,000.00
13	Monterey Bay Sanctuary Scenic Trail: from Santa Cruz to Pacific Grove expand and construct bike and pedestrian network along Monterey Bay Natioanl Marine Sanctuary	$15,000.00

Total Cost ($ In Thousands): $1,319,745

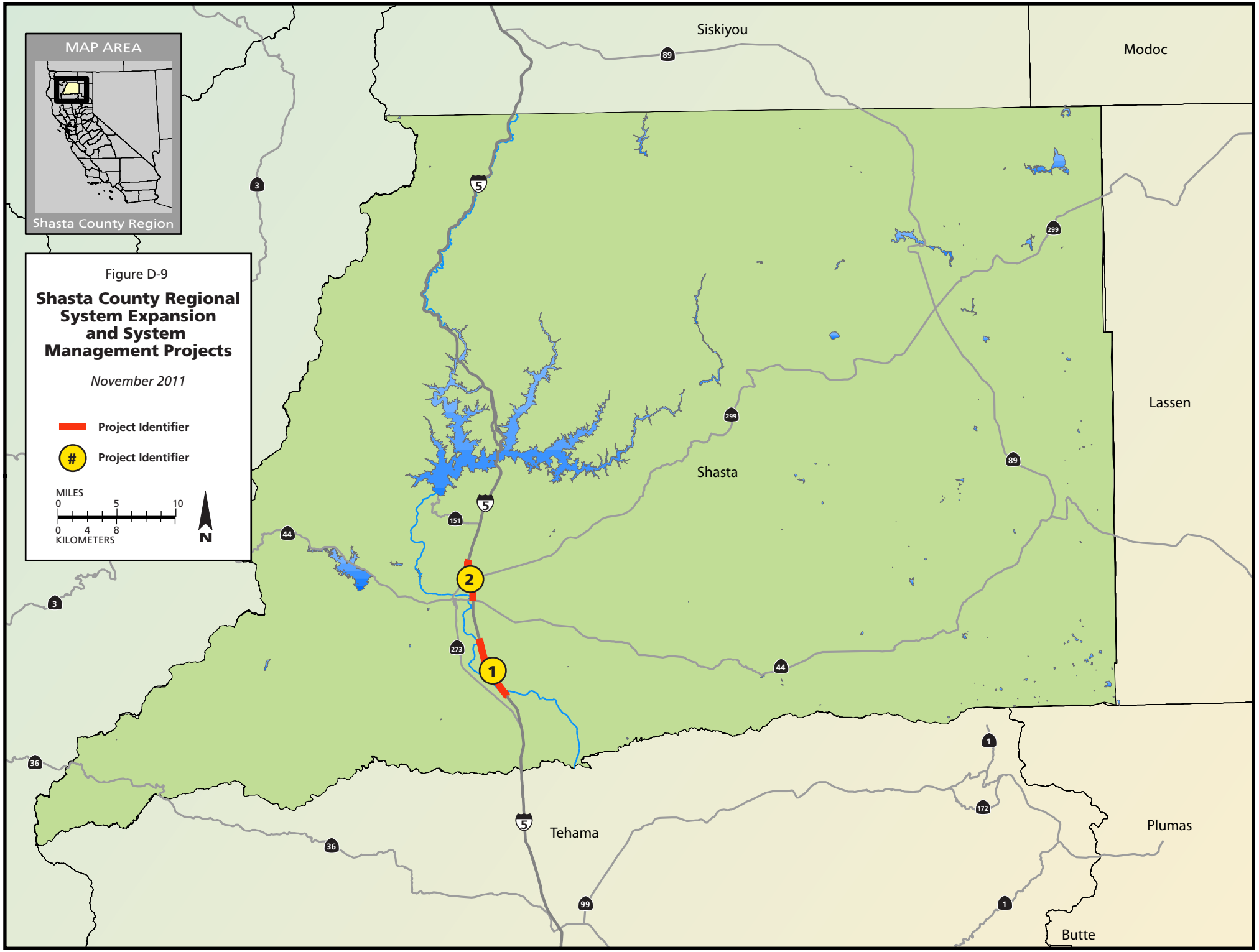

MAP AREA
Butte County Region
Tehama
Plumas
Glenn
Sierra
Yuba
Sutter
Nevada
Placer
1
2
3
4
5
6
7
8
9
Figure D-8
2011-2020 Butte County Regional System Expansion and System Management Projects
August 2011
Project Corridors and Locations
Project Identifier
10 Not Displayed
MILES
0 5 10
0 8 16
KILOMETERS
N

2011 - 2020 Butte County Regional System Expansion and System Management Projects

General Purpose Lanes		$ In Thousands
1	SR 99: In Chico, from Route 32 to East 1st Avenue. Construct northbound and southbound auxillary lanes with corresponding ramp improvements, and widen East 1st. Avenue. - Phase 2&3	$29,394
2	SR 70: Near Oroville, at West Branch Feather River Bridge #12-134. Seismic retrofit.	$23,409
3	SR 70: Near Gridley, from 0.7 mile south of East Gridley Road to 0.4 mile North of Cox Lane. Construct Passing Lane.	$13,800
4	SR 32: In the city of Chico from SR 99 to Forest Avenue. Add lanes in each direction including 8 foot shoulders, paved landscape median, timber guardrail and signal modifications.	$9,925
5	SR 70: In Oroville, at Flag Canyon Creek Bridge # 12-0140. Replace bridge.	$4,760
6	SR 70: Near Oroville, at Pentz Overhead #12-138 and at Cherokee Overhead #12-137. Seismic retrofit.	$3,918
7	SR 99: Install centerline and shoulder ground-in rumble strips AND Rock Creek Br. Widen shoulders.	$1,400
8	SR 149: Butte County Minor Construction Program. SR 149 construct access Rd EA 1F930.	$935
9	SR 70: Caltrans SHOPP Long Lead SR 70 Bridge - scour replacement #12-0140.	$419

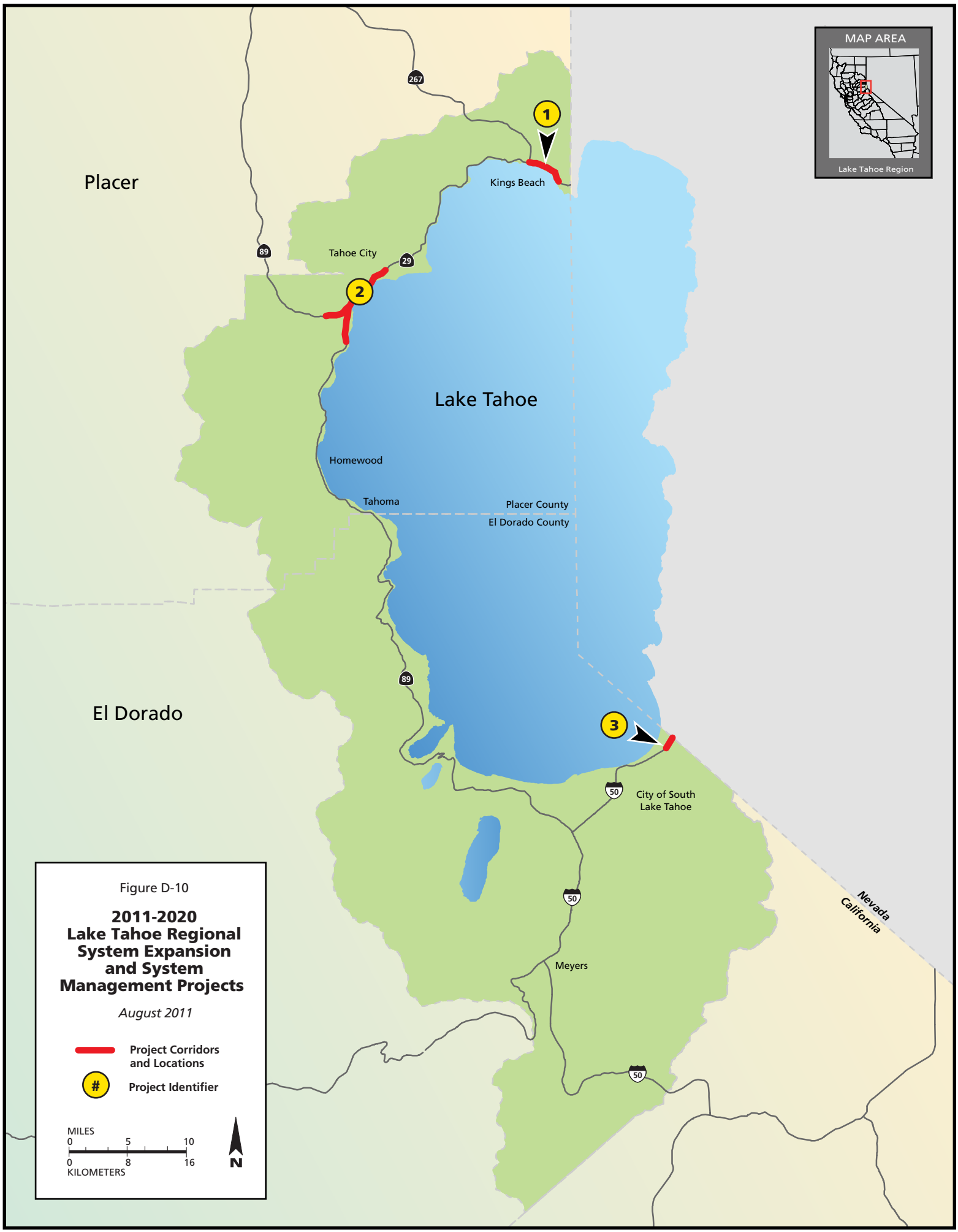
Public Transit		$ In Thousands
10	Butte Regional Transit Operations Center, Chico.	$15,021

Total Cost ($ In Thousands): $102,981


MAP AREA
Shasta County Region
Figure D-9
Shasta County Regional System Expansion and System Management Projects
November 2011
Project Identifier
Project Identifier
MILES
0 5 10
0 4 8
KILOMETERS
N
Siskiyou
Modoc
Lassen
Shasta
Tehama
Plumas
Butte
1
2
3
5
89
299
151
44
273
36
99
172

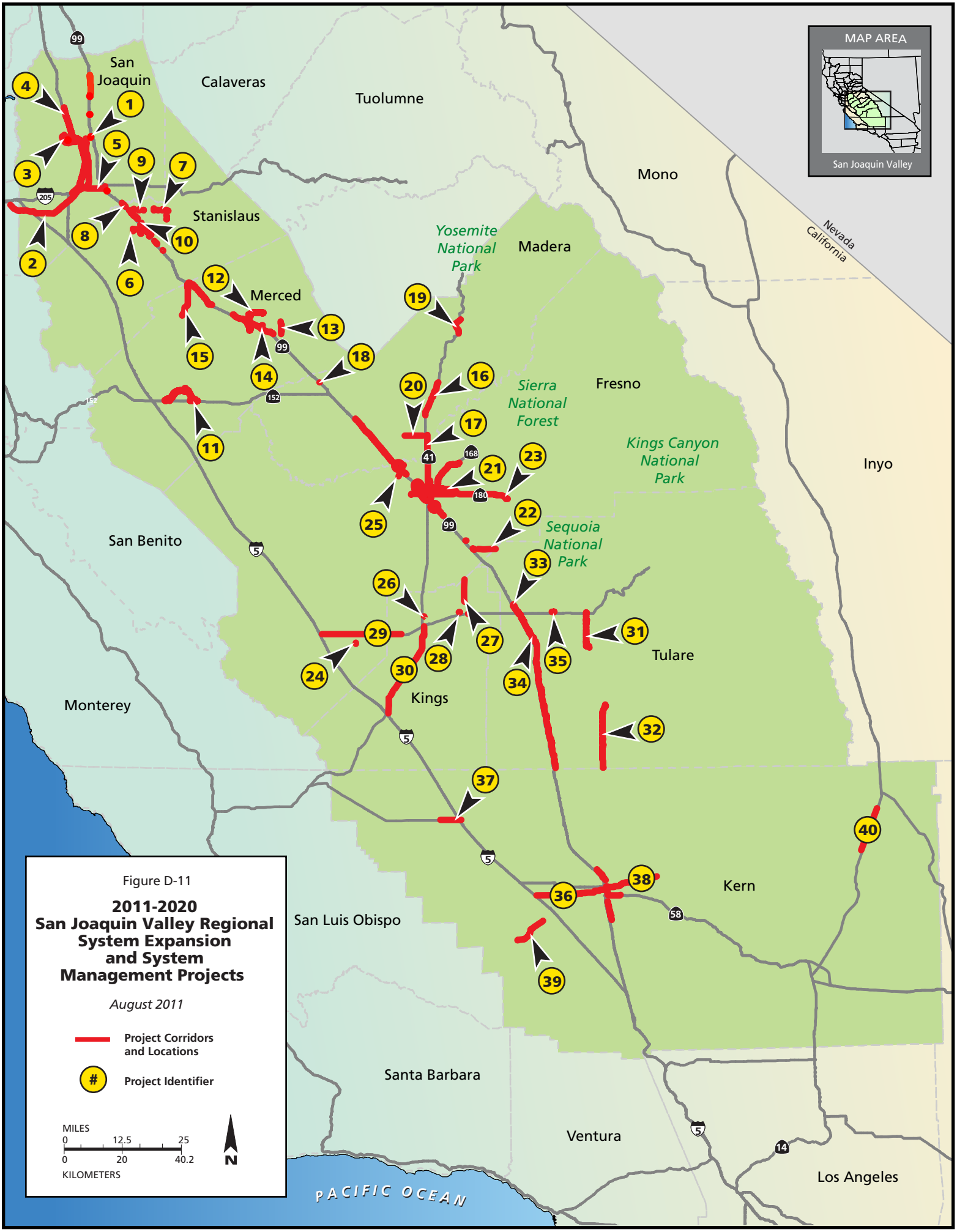
2011 - 2020 Shasta County Regional System Expansion and System Management Projects

General Purpose Lanes		$ In Thousands
1	I-5 Add on lane either direction from Riverside Ave overcrossing (exit 670) to South Bonnyview Road (Exit 675)	$38,100
2	I-5 Add one lane either direction from Central Redding Interchange (exit 678) to North Redding Interchange (SR 273/Market St. ramp)	$34,290
	Total Cost ($ In Thousands):	**$72,390**


MAP AREA
Lake Tahoe Region
Placer
El Dorado
Kings Beach
Tahoe City
Lake Tahoe
Homewood
Tahoma
Placer County
El Dorado County
City of South Lake Tahoe
Meyers
Nevada
California
267
89
29
50
1
2
3
Figure D-10
2011-2020 Lake Tahoe Regional System Expansion and System Management Projects
August 2011
Project Corridors and Locations
Project Identifier
MILES
0 5 10
0 8 16
KILOMETERS
N

2011 - 2020 Lake Tahoe Regional System Expansion and System Management Projects

General Purpose Lanes		$ In Thousands
1	Kngs Beach Commercial Core Improvement Project	$36,414
2	State Route 89 / Fanny Bridge Community Revitalization Project	$18,040
3	Ass new interchange at Marguerite Parkway (Saddleback CC Connection)	$113,120
	Total Cost ($ In Thousands):	**$167,574**


MAP AREA
San Joaquin Valley
San Joaquin
Calaveras
Tuolumne
Mono
Nevada
California
Stanislaus
Merced
Madera
Yosemite National Park
Fresno
Sierra National Forest
Kings Canyon National Park
Inyo
San Benito
Sequoia National Park
Tulare
Kings
Monterey
Kern
San Luis Obispo
Santa Barbara
Ventura
Los Angeles
PACIFIC OCEAN
Figure D-11
2011-2020 San Joaquin Valley Regional System Expansion and System Management Projects
August 2011
Project Corridors and Locations
Project Identifier
MILES
0 12.5 25
0 20 40.2
KILOMETERS
N

2011 - 2020 San Joaquin Valley Regional System Expansion and System Management Projects

San Joaquin Valley State Route 99 Goods Movement Backbone - North to South	$ In Thousands
Total 99 Backbone Projects	**$ 3,343,004**
San Joaquin County	**$ 562,000**
Modify 4 Interchanges on SR 99	
SR99 at Harney	$ 40,000
SR99 at Eight Mile	$ 98,000
SR99 at Morada	$ 149,000
SR99 at Austin	$ 135,000
SR 99 Lodi Widening	
Widen from 4 to 6 lanes between Harney Lane & Acampo Road	$ 140,000
Stanislaus County	
SR 99 - 6 to 8 Lane Widening - Mitchell Road to San Joaquin County Line	**$ 805,000**
Merced County	**$ 707,000**
SR 99 Livingston-Delhi Widening (8 miles of widening from 4 to 6 lanes)	$ 80,000
SR 99 Atwater Freeway (Widening 4 miles from 4 to 6 lanes, and interchanges)	$ 249,000
SR 99 AME Phase 1A (Widening 1.6 miles and new interchange)	$ 118,000
SR 99 Merced Freeway (Widening 6 miles from 4 to 6 lanes, and interchanges)	$ 260,000
Madera County	**$ 237,000**
SR 99 from Aves 7 to 12	$ 124,000
SR 99 from Aves 12 to 17 and interchange improvements at Ave 17	$ 113,000
Fresno County	**$ 376,204**
Island Park 6 Lane: SR 99-0.2 miles South of Grantland Ave to 0.6 Miles North of Avenue 7-Widen from 4 Lanes to 6 Lanes	$ 66,050
SR 99 and Floral Rd Interchange: Widen and Replace Bridge	$ 10,000
SR 99 and Fresno NB and SB Off and On Ramps: Signal Upgrades	$ 462
SR 99 and Herdon NB Off Ramp: Widen Ramp	$ 1,000
SR 99 and Mountain View Overcrossing: Widen from 2 Lanes to 4 Lanes and Improve On/Off Ramps	$ 45,000
SR 99 Various Interchanges within Fresno County: Interchange Improvements	$ 250,490
SR 99 Various Off Ramps within City of Fresno: New Traffic Signals	$ 3,202
Kings County	
SR 99 does not traverse Kings County, and does not participate in any funding activities for SR 99	N/A
Tulare County	**$ 466,000**
SR 99 Caldwell Ave to Goshen, 4 to 6 lns	$ 46,000
SR 99 Prosperity Ave to Caldwell Ave, 4 to 6 lns	$ 80,000
SR 99 Avenue 200 to Prosperity Ave, 4 to 6 lns	$ 130,000
SR 99 South of Tipton to Avenue 200, 4 to 6 lns	$ 80,000
SR 99 Kern Co. Line to South of Tipton, 4 to 6 lns	$ 130,000
Kern County	**$ 189,800**
SR 99 Wilson Rd to Rt 119 - widen to eight lanes	$ 52,000
SR 99 Rt 204 to 7th Standard Rd - widen to eight lanes Phases 1-2	$ 102,800
SR 99 new Hosking Interchange	$ 35,000

Priority Projects		$ In Thousands	
	Total Priority Projects	**$**	**6,392,493**
San Joaquin County		**$**	**1,007,000**
1	SJRTD: Regional Transportation Center - New Bus Operations and maintenance facility	$	67,000
2	SJRRC Altamont Pass Commuter Rail Corridor - Acquisition and Upgrade of Altamont Pass corridor for Altamont Commuter Express (ACE) Passenger Rail Service (San Joaquin Section Only)	$	300,000
3	Port of Stockton Access and Operations Improvements - Construction of highway access improvements to the Port of Stockton and enhanced container operations system	$	50,000
4	I-5 HOV Lanes - Construct HOV lanes between Eight Mile Road and I-205	$	500,000
5	SR 120 Manteca Widening - Widen from 4 to 6 lanes between I-5 and SR-99	$	90,000
Stanislaus County		**$**	**1,271,000**
6	Stanislaus County - SR Connectivity to SR 99 Improvement Project	$	487,000
7	Stanislaus County - North County Corridor - SR 99 to SR 120/108 - Construct 2-6 Lane Expressway	$	554,000
8	Stanislaus County- SR 99/Hammett Interchange Replacement	$	95,000
9	Stanislaus County - SR 99 / 219 Kiernan Interchange Replacement	$	66,000
10	Stanislaus County - SR 99/Pelandale Interchange - Reconstruct to 8 Lane Interchange	$	69,000
Merced County		**$**	**1,066,000**
11	SR152 Los Banos Bypass (New 4 lane Expressway, 10 mile bypass)	$	500,000
12	SR59 Atwater-Merced Expressway (New 4 lane Expressway)	$	214,000
13	Campus Parkway (New 4 lane Expressway)	$	110,000
14	SR59 Widening (Widening 0.8 miles from 2 to 4 lanes)	$	42,000
15	SR165 Hilmar/Turlock project	$	200,000
Madera County		**$**	**156,099**
16	SR 41 - SR 145 to Rd 200 Construct Passing Lanes	$	30,560
17	SR 41 - Ave 10 to Ave 12 w/ Interchange at Ave 12 Extend Freeway/Build Interchange	$	46,400
18	SR 233 - At SR 99 Reconstruct/Widen Interchange	$	35,000
19	SR 41- Rd 420 to SR 49 Widen from 2 to 4 lanes	$	22,900
20	Ave 12 - Rd 38 to SR 41 Widen from 2 to 4 lanes	$	21,239
Fresno County			**$414,468**
21	Bus Rapid Transit (BRT): Along Blackstone Avenue from Friant Road on the north to Downtown Fresno and on Kings Canyon Road from Fowler on the east to Downtown Fresno	$	48,188
22	Mountain View-Bethel to Tulare County Line: Widen from 2 LU to 4 LD	$	24,064
23	SR 180-Academy to Frankwood: Construct 4 Lane Expressway on New Alignment	$	134,748
24	SR 269 Bridge between SR 198 and Huron: Construct New Bridge and Raise Profile Grade	$	39,798
25	Veterans Blvd-Grantland to Herndon w/ Interchange at SR-99 & Grade Seperation at UPRR & Golden State	$	167,670
Kings County		**$**	**557,000**
26	SR 41; at Hanford-Armona Road, Construct Interchange	$	36,000
27	SR 43; from Fresno County Line to 10th Avenue, Widen from 2-Lanes to 4-Lane Expressway	$	97,000
28	SR 198: at 9th Avenue, Construct Interchange	$	97,000
29	SR198; from I-5 to Lemoore Naval Air Station, Widen from 2-Lanes to 4-Lane Expressway	$	145,000
30	SR41; from SR 198 to I-5, Widen from 2-Lane s to 4-Lane Expressway	$	182,000
Tulare County		**$**	**395,000**
31	SR-65/Spruce 4 to 6 lane widening from Hermosa Rd to SR-198	$	140,000
32	SR-65 4 to 6 lane widening from Kern Co. line to Tea Pot Dome	$	130,000
33	SR-99/Betty Dr Interchange improvements	$	55,000
34	SR-99/Cartmill Ave Interchange improvements	$	35,000
35	SR-198/Lovers Ln Interchange improvements	$	35,000
Kern County		**$**	**1,525,926**
36	SR58 Centennial Corridor Project (new freeway and interchange connecting I-5 to east of 99)	$	1,068,026
37	SR46 Corridor Phases 4 (widen to 4 lane expressway from I-5 to East of Lost Hills)	$	97,000
38	SR178 Corridor Projects (widen existing corridor/freeway from 99 to Miramonte)	$	161,900
39	SR119 Cherry Ave widening (widen to 4 lane expressway between Taft and I-5)	$	115,000
40	SR14 Freeman Gulch Phases 1-2 (widen to 4 lane expressway at 178)	$	84,000
	Total Cost ($ In Thousands)		**$9,735,497**